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WASHINGTON, D.C. 20268–0001

ANNUAL COMPLIANCE REVIEW, 2015	Docket No. ACR2015

RESPONSE OF THE UNITED STATES POSTAL SERVICE
TO COMMISSION INFORMATION REQUEST NO. 1
(November 28, 2016)

The Postal Service hereby files its response to CIR No. 1, issued September 27, 2016. The Postal Service's response is attached.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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RESPONSE OF THE UNITED STATES POSTAL SERVICE
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1. To ensure compliance with the Commission's chapter 6 directive in the Fiscal Year (FY) 2015 Annual Compliance Determination (ACD), the Postal Service is requested to provide a written method to measure, track, and record the cost and service performance issues for each of the six pinch points described in the directive.

RESPONSE:

The Postal Service's response is provided in the attached document.

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The United States Postal Service hereby submits this response to Postal Regulatory Commission Information Request (CIR) No. 1.[1]

The Information Request reflects the Commission's conclusion that the materials submitted by the Postal Service on July 26, 2016[2] were not sufficiently responsive to the directive at page 181 of the Commission's FY 2015 Annual Compliance Determination (ACD) Report (March 28, 2016) (hereinafter, the ACD Flats Directive). That directive identified six components (pinch points) within the flats mail stream. For each pinch point, the directive requested a variety of information grouped into four bulleted categories. The CIR at page 2 goes beyond the initial directive to identify methods for measuring, tracking and reporting on cost and service issues related to the six pinch points by further instructing the Postal Service to provide methods to accomplish those objectives.[3] Finally, at page 3, the CIR indicates that since the information set forth in the bullet points "was intended to be included under the . . . method[s] to measure, track, and report the cost and service issues for each pinch point, the Postal Service shall revise its responses on those issues accordingly."

The Postal Service herein incorporates by reference its July 26, 2016 Flats Response. At the risk of being redundant in its presentation, the Postal Service has opted to minimize inconvenience to readers by organizing its response to the CIR in a

[1] Docket No. ACR2015, Commission Information Request No. 1 (September 27, 2016).

[2] Report Regarding Information About Flats Data Systems, provided as part of the Third Response of the United States Postal Service to Commission Requests For Additional Information in the FY 2015 Annual Compliance Determination (July 26, 2016) (hereinafter, Flats Response).

[3] Accompanied, as appropriate, by workpapers**.**

form that repeats relevant content from its Flats Response that remains current.[4] In contrast to its July 26th submission, the Postal Service has restructured the content of the instant CIR response in a manner that discusses each pinch point separately. Within each pinch point discussion, the goal of the instant CIR response is to address the four ACD Flats Directive bulleted information categories. To the extent that it is able for particular pinch points, the Postal Service identifies below methods or plans for measuring, tracking and reporting on aspects of flats cost and service issues publicly at the national aggregate level that are either currently available or expected to be operational in the near future. The Postal Service suggests that all reporting resulting from the Flats Directive initially be at the national level and on a quarterly basis. Once the Commission familiarizes itself with pertinent data and determines more specifically the format and nature of necessary data, there may be opportunity to revisit this initial determination. The Postal Service is concerned that if this baseline approach is not established at the outset, it would be compelled to devote its scarce resources to the production of voluminous data files of greater granularity at varying levels of reliability with little discernible benefit to it or the Commission.

I. Introduction

As the proliferation of Postal Regulatory Commission dockets makes clear, the Postal Service uses a variety of methods to collect voluminous operational data from many sources and analyzes those data to serve numerous purposes at different levels of the organization. It is to be expected that the completeness and quality of data from

[4] The alternative would have been to streamline the instant CIR response, but to litter it with numerous citations to text in the July 26th Flats Response, which would have burdened readers with having to jump back and forth between the two documents to follow this CIR response.

these various systems and sources will vary widely. In recent dockets (*e.g.*, Docket Nos. RM2016-12 and RM2015-2), there have been vigorous arguments about the appropriateness of data generated for a specific purpose by a particular postal data system being used for other purposes not accounted for when the system was designed. These disputes have hinged on the question of whether data considered robust and complete to inform the decisions they were originally intended to support are sufficiently robust and complete for other purposes.

The material that the Postal Service is offering today in response to CIR No. 1 encompasses a diagnostic model that is firmly based in a methodology familiar to the regulatory world, as well as data from operational systems that certainly serve their purpose in their milieu, but that ordinarily might not prove robust enough in a traditional regulatory framework. Given the iterative process through which the Postal Service has obtained an improved understanding of the nature and scope of the information sought by the Commission, there is little question that what is being tendered here will necessarily be the first step in an evolutionary process to develop a set of data reports that the Commission and the Postal Service can agree add value to the question of how best to track and report on metrics that will ultimately lead to improvements in the service and efficiency of flats processing.

II. Background

The instant response to CIR No. 1 can best be understood in context with the Commission's FY 2015 ACD Flats Directive, the Postal Service's response to that directive, the difference between the Flats Directive and the CIR inferred by the Postal Service, and the outcome of the recent technical conference.

The ACD Flats Directive and the Postal Service Response

The FY 2015 ACD Flats Directive emerged from the discussion in Chapter 6 (pages 160-182) of the ACD Report and is summarized in that report at Appendix B, pages 4-5. The directive instructed the Postal Service to "identify a method to measure, track, and report the cost and service performance issues relating to the individual pinch point at the most granular level practicable." FY 2015 ACD Report at 181. It directed the Postal Service to indicate for each pinch point what data would not be available and what the cost of developing such data would be. *Id*. It further requested identification of "all information that would be necessary to develop, implement, monitor and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available." *Id*.

In its July 26th Flats Response, the Postal Service acknowledged that:

> [t]here is no doubt that Outside County Periodicals and Standard Mail Flats, in particular, have been among the most challenging products for the Postal Service to process and deliver profitably in the years since enactment of the Postal Accountability and Enhancement Act of 2006 (PAEA). Volume has declined precipitously … in the period between FY 2008 and FY 2015, for example, overall flats volumes decreased from 34.4 billion pieces to 21.5 billion pieces – a nearly 40 percent decline.

Flats Response at 2-3. The Postal Service agreed with the Commission that persistent problems with provision of timely and efficient service to Outside County Periodicals and Standard Flats continue: problems that pre-date enactment of the Postal Accountability and Enhancement Act of 2006 and that have been exacerbated by precipitous declines in affected mail volume. As a network industry with economies of scale, scope and

density, the Postal Service has repeatedly affirmed[5] that dramatic declines in volume will necessarily be detrimental to unit costs, a situation particularly exacerbating cost coverage issues for categories of mail in which revenue was already insufficient to cover the costs.

In that context, the Postal Service pointed out that, while it shared the Commission's frustration with regard to the continuing degradation of flats costs,

> It is concerned, however, that the Commission's interest in obtaining ever more granular data points could shift attention and resources away from the efforts already underway to achieve sustainable improvements to efficiency and service performance for flats. The focus should be on maintaining and building upon the improvements we continue to see in terms of service while redoubling our efforts to maximize efficiencies.

Flats Response at 3. At pages 3 through 7, the Postal Service stated its understanding of the Commission's assignment, with the fundamental focus on what the Postal Service understood the assignment to be: "In directing the Postal Service to prepare this report, the Commission seeks to refine its understanding of 'what can be done to improve cost and service efficiency for flats'". *Id*. at 3-4, referring to FY 2015 ACD Report at 181. In the Postal Service's good faith effort to respond to what it understood to be the Commission's goals, the Flats Response provided:

> descriptions of the activities encompassed in each of the pinch points;
>
> various opportunities for mail pieces to fail to receive timely and efficient handling in each pinch point;
>
> the challenges of obtaining specific data in some pinch points due to the actual nature of the work encompassed by that pinch point (for example, allied activities); and
>
> descriptions of the various data systems currently in place and/or in development that could be used to monitor each of the pinch points.

[5] See, for example, the Analysis of UPS Proposals One and Two, and the Supporting Report of Dr. Kevin Neels provided by Dr. Michael D. Bradley in support of the Postal Service's Initial Comments in Docket No. RM2016-2 (filed on January 25, 2016, and posted on January 27, 2016) at pages 3 and 15.

That response also reflected the Postal Service's preference that more, and more granular, data would ideally be "generated passively in the course of pre-existing postal operations, such as piece counts and barcode scan data generated by automated mail processing equipment." *Id*. at 14. The Postal Service specifically noted that the "ACD directs . . . [it] to identify methods to report cost and service performance issues for each 'pinch point' at 'the most granular level practicable.'" *Id*. The Postal Service expressed the view that, in an effort to retain a commonsense approach to the exercise, the Commission's use of the word "practicable" reflected its recognition of "the existence of tradeoffs between the cost and value of generating and utilizing additional data related to the pinch points." *Id*.

CIR No. 1 and the Technical Conference

Issued on September 27, 2016, CIR No. 1 redirected the Postal Service to provide a written method to "measure, track, and record the cost and service performance issues for each of the six pinch points" described in chapter 6 of the Commission's FY 2015 ACD Report.[6] At page 2 of CIR No. 1, the Commission expressed concern that the Postal Service's July 26th response had not met its expectations with regard to the ACD Flats Directive. In what the Postal Service perceives as a departure from that directive, the CIR specifically requested workpapers for each pinch point and a specific plan for both cost and service performance improvements. *Id*.

[6] Docket No. ACR2015, Annual Compliance Determination (ACD) Report, Fiscal Year 2015 (March 28, 2016).

Simultaneously with that Information Request, the Commission scheduled an off-the-record technical conference for October 21, 2016, at which the Postal Service was expected to present a method to measure, track, and report cost and service performance issues for each of the operational pinch points.[7]

At the technical conference, the Postal Service was represented by three subject matter experts who offered a presentation based on detailed diagrams of each pinch point, highlighting the possible obstacles within each and the alternate mailflows in the event that the ideal path for that mail was not followed. In addition, the presentation provided visibility regarding the data systems used to monitor each of the pinch points, and in many situations, various activities within each pinch point.[8] The Postal Service's service performance measurement expert summarized the presentation by indicating that it reflected for each pinch point the metrics that the Postal Service does and can measure.

A view expressed in response to the Postal Service presentation was that it did not identify "the actual metrics" that were expected would be reported, and the example was offered of a metric that would measure the total cost associated with bundle breakage. It was further indicated that the Commission had expected the Postal Service, for example, to express an intent to provide, for each fiscal quarter, a measure of the number of broken bundles and the cost of handling those broken bundles. Further dialogue among the postal participants, members of the Commission's technical staff, and mailing industry representatives at the conclusion of the Postal Service presentation made clear that further effort by the Postal Service would be required to

[7] PRC Order No. 3539 (September 27, 2016).

[8] *See* CIR.1.Attach.1.Oct21.Tech.Conf.Slides.pdf, attached to this response electronically.

close the gap between what the Commission appeared to expect and what the Postal Service could identify as realistically-achievable progress towards the CIR objectives.

The Postal Service has reviewed its approach to the ACD Report to determine how its response to the Flats Directive fell short of the Commission's apparent expectations. According to the Commission:

> [t]he purpose behind the [FY 2015 ACD] flats chapter and accompanying directive was to have the Postal Service develop a plan for each pinch point leveraging its existing data to measure and solve the problems with flats cost and service performance and have the Postal Service look at how it could use additional data to support its plan and increase visibility into these issues.

CIR No. 1 at 1. However, in contrast to the explicit directive at page 138 of the FY 2015 ACD Report to develop and implement "a detailed, comprehensive plan to improve service performance for First-Class Mail Single-Piece Letters/Postcards," the only mention of a "plan" within the Flats Directive was with regard to identification of all information necessary for a plan to improve flats service and cost coverage "if an ideal data system were available." *Compare* FY 2015 ACD at 138 and 181. Thus, in construing the separate ACD Report directives regarding the development of plans for First-Class Mail and flats, the Postal Service interpreted the former directive as seeking the generation of a concrete plan to be implemented; and it interpreted the latter as seeking discussion of what the Postal Service deemed a hypothetical ideal scenario. The Postal Service considers that, by detaching the hypothetical "ideal" scenario from the original Flats Directive, CIR No. 1 recasts that directive in a materially different manner than it was originally interpreted, mandating the development of a materially different response than was filed on July 26, 2016.

At this point, the Postal Service regrets that it failed to infer what may have been thought to have been implied by the original Flats Directive. The CIR and technical

conference have served to better clarify the Commission's intent. However, such clarity does not reduce the scope or the complication inherent in the assignment. Nor does it close the gap between what the Commission has requested and what is presently feasible. Nevertheless, as indicated at the technical conference, the Postal Service hereby responds as fully as it can to what it now perceives the Commission to be seeking.[9]

III. Updated Response to ACD Flats Directive

Incorporating by reference the material provided in its July 26th Flats Response, the Postal Service will herein attempt to provide a response reflecting its improved understanding of the Commission's Flats Directive. As was indicated throughout the Flats Response (and at the technical conference), there are areas within each of the pinch points that simply cannot be addressed at this stage, but the instant document will focus on what the Postal Service considers that it can do, within current constraints, to be responsive to the Commission's objectives.

[9] At the same time, some of the limitations and contexts stated previously by the Postal Service continue to be relevant to these topics. Additionally, it may be worth recalling the directive in Section 708 of PAEA that ordered the Postal Service and the Commission to develop, over the course of five years, a report on Periodicals service and cost. The resulting document, Periodicals Mail Study, Joint Report of the United States Postal Service and Postal Regulatory Commission, was published in September of 2011. The report discussed flats operations, equipment, processes, data, and challenges. It is important to note that the report used FY 2010 data as the analytical base, and the flats mail volume has continued to decline since then, with the accompanying loss of economies of scale and density. The point in bringing up the Periodicals Mail Study in the current context is to underscore that the report had a much more narrow scope, in that it was investigative and not proscriptive, and took five years to produce. The current assignment, in the Postal Service's view, is much larger in scope, suggesting why the Postal Service, in the time since the issuance of CIR No. 1 (and particularly since the exchange of views at the technical conference), may perhaps not have generated a response in this document that immediately meets everything that might have been contemplated.

A. General Statement About Costs

The Postal Service considers that a general statement about costs is in order before it separately addresses each of the six operational pinch points further below.

Whereas the service performance metrics and measurement systems have been described to the Commission in detail in the July 26th Flats Response and at the October 21st technical conference, the most significant apparent shortcoming in the Postal Service's reply to the Flats Directive would be in the area of how to measure the cost impact of each pinch point. That topic is discussed below.

As emphasized at the very outset of this document, the current task is to bridge the gap between operational and regulatory worlds. The focus of the Commission's inquiries is related to the operational world: the activities, the mishaps, the data measuring each of those, and an understanding of how the Postal Service intends to respond to the challenges associated with them. Thus, in an effort to bring a greater understanding of that world into the regulatory world, before discussing each pinch point directly, the Postal Service considers it important to emphasize that, in addition to meeting service objectives, the primary objectives of managers of postal operations in the field are to control total workhours and total budget expenses. Workhours necessarily translate into personnel expenses, but mail processing plant managers or delivery unit managers do not directly manage dollars, or expenses; they directly manage the associated workhours, managing their employee mix and overtime hours. Furthermore, it is appropriate that, while these managers are aware (through, if by no other means, the variance reports described in the Flats Response) of the multitude of operations in which the workhours are being utilized, the appropriate metric determining their focus and measure of success is and should be total workhours. This approach

ensures that managers do not "succeed" in certain specific operations by shifting "extra" personnel into operations other than the ones being specifically targeted for improvement. For example, misguided efforts that focus solely on one or a small number of operations without considering the full picture of workhours could create unintended incentives for dubious clocking practices if the circumstances (such as poorly-prepared mail tendered to that facility) causing the "failures" are somewhat beyond a plant manager's control.

Nevertheless, the Postal Service believes that it can translate accounting data into operational data into cost data, as described below. A point of pride in the Postal Service's cost methodology has been that dollars can be mapped directly from the General Ledger Accounts, which itemize expenses by nature of expenditure (e.g., salaries, benefits, transportation contracts, depreciation, etc.), through the cost segments and components (which group the General Ledger Accounts) into attributable and institutional costs.[10] The attributable[11] costs are distributed to individual products and shapes of mail. Those costs by shape and product are the touch points for the workshare cost avoidance models which map mail through various mailflow models, costing out each step of the way. At the end of the mailflow mapping, the costs of every presort or dropship level are weight-averaged by the volume of that mail. The sum of those weighted costs is trued up to the cost by shape for that product. Thus, one could

[10] See, for example, Bradley, M., Colvin, J. and Smith, M., "Measuring Product Costs for Rate-making: The United States Postal Service," in Michael Crew and Paul Kleindorfer, eds., Regulation and the Evolving Nature of Postal and Delivery Services: 1992 and Beyond. Kluwer (1992).

[11] The Postal Service acknowledges that PRC Order No. 3506 (September 9, 2016) redefined "attributable" but notes that, of necessity, the data used in support of this response are from ACR2015 which was unaffected by the Commission's decision to change the definition of "attributable" costs. It further notes that, with the new definition of "attributable" costs incorporating all of the components of incremental costs, many of the analyses of attributable costs discussed in this response would not be possible, as incremental costs are not additive across products, and the analyses would, instead, have to be performed with volume-variable costs.

begin at the General Ledger and map dollars down to the individual activity, or one could start with the individual activity in the mailflow models and map the dollars back up to the General Ledger. As a result, it is possible to translate actual postal expenses to the activity level. If one is more comfortable with the accounting aspect, the General Ledger expenses provide the metric; if one prefers an economic or engineering approach, the cost studies can provide the metric.

What the Postal Service is proposing here would add in extra layers of translation as the expenses move from the General Ledger through the postal Labor Distribution Code (LDC) and Management Operating Data System (MODS) operation code groupings familiar to field managers, and from there into mailpiece shape and other distinctions. In the course of this journey, the concept of "attributable" costs will not be broached until the final step in which cost impacts of changes are calculated in a model familiar to the Commission. As the primary focus is on mail processing costs, and as most mail processing activities are presumed to have volume variabilities at or very near 100 percent, there should not be a major disconnect between operational and regulatory costs for most of the conversation.

The Postal Service already provides to the Commission, on a two-week pay period basis, the expenses by craft employee type. The Payroll Hourly Summary Report, which was over 7,960 lines long for the national roll-up for Pay Period 22 of 2016 (filed on November 4, 2016), is primarily used in the mailflow models to develop average hourly wages by craft employee and at a more detailed level for particular times of day or facility type. But the report also provides the Commission with other data that offer insight into whether expenses in the General Ledger for salaries and benefits changed by craft, by straight time or overtime, by full-time or casual or part-

time. The Postal Service does not perceive that any additional reporting on General Ledger expenses by labor category would be required in order to gain a national picture of the labor expenses.

The detailed levels of pay shown in the Payroll Hourly Summary Report are aggregated into General Ledger expenses by account and subaccount. Those expenses, on a national level, are provided at the account and subaccount level in the Reallocated Trial Balance, provided in the public folder USPS-FY15-5 and in the unredacted folder USPS-FY15-NP29. The Reallocated Trial Balance is provided to the Commission as part of the Annual Compliance Report, but it could be provided on a quarterly basis.

Whereas the main purpose of the Reallocated Trial Balance is to map expenses to Cost Segments, in order to begin the translation of those expenses to the pinch points, the same information may be used in conjunction with other data to map those expenses to LDCs or MODS operation codes which are the activity units into which postal employees are clocked. The LDC groupings of costs are well-established at the Commission as the framework within which MODS data are reported.

At the most basic level, workhours determine the cost associated with processing the mail. The Postal Service provides the Commission with a full list of active operations as part of the USPS-FY15-7 and USPS-FY15-NP18, including LDC and cost pool mappings, particularly in USPS-FY15-7 part1.xlsx and USPS-FY15-7 part2.xlsx. The Postal Service can provide the workhours (and workloads) at the operation level, and can map the LDCs and operations to the Cost Segments and/or cost pools. These data can be provided to the Commission at a national level on a quarterly basis, and is another way of disaggregating the Cost Segments into the finer

levels of detail in the LDCs and operations associated with each. The LDCs and encompassed MODS operation codes can be mapped to Cost Segments, and the workhours and TPH (total pieces handled) or TPF (total pieces fed), whichever is applicable to that operation (or cost pool/LDC), can be reported. Using assumptions on wage rates, workhours can be used to split the costs by LDC into the cost pools and this can be extended down to the operation level. But the finer the granularity, the more questions about the assumptions would be necessary. In addition, it is worth noting that for manual operations, the Postal Service struggles to obtain reliable measures of volume.

There are two main benefits to reporting costs by operationally relevant groupings such as LDCs or MODS operations (or groups thereof). First, as mentioned above, LDCs and MODS operations constitute a unit of measurement familiar to the postal managers making operational decisions, and trackable within many operations databases, whereas the concept of CRA "Cost Segments" will tend to be understandably unfamiliar to postal operations managers not already participating in the regulatory arena. Second, in the event that the Commission desires to delve into levels of granularity below the national level (to be discussed further below), LDCs and MODS operations will be useful as a standardized basis for reporting and comparing more granular data.

The data described thus far would provide a picture of how the workhours by LDC change from quarter to quarter. Those workhours can be translated into expenses. Those workhours can also be viewed in terms of productivity, by considering the workhours relative to the Total Pieces Handled or Total Pieces Fed (TPH and TPF) measures. But those, alone, would not necessarily inform the Commission as to

whether or not those hours represent efficiency. At minimum, the total workhours and TPF or TPH data should be considered in the context of growing or declining total workload, i.e., the volume of mail by mail preparation category. In addition, it would be possible to provide, for most of the operations listed, an agreed-upon measure -- whether it be a target, an "ideal" state, or an average of high-performing sites – in order to establish how close the Postal Service was coming to its efficiency target. Whereas the Mail Processing Variance Reports (MPV) use the top quartile of performance as the target, if the Commission and Postal Service can agree upon reporting targets and the degree to which they are met, these metrics would be part of future improvements in these reports.

The Postal Service considers it important to focus for a moment on the phrase "most granular level practicable" in the Commission's Flats Directive. As the Commission surely is aware, the Postal Service obtains information in various systems such as MODS, End-of-Run reports (EOR), and a myriad others described in the Flats Response, on a facility-specific basis, daily or hourly, or even real-time, with reports generated from such data on daily or weekly bases by facility and at various levels of aggregation. As the Postal Service explained in the Flats Response, Mail Processing Variance Reports (MPV) are available to every plant or Network Distribution Center (NDC), or rolled up to the postal administrative District or Area, on a weekly basis. The Postal Service clearly laid out, in the Flats Response, the forms of metrics available. Given the information on the metrics that was provided in the Flats Response, the Postal Service thought that, in following up, the Commission might have indicated what it expected to see and on what reporting basis. In the absence of such guidance, the Postal Service will make its own offer of metrics and reporting below, and expects that

the nature and periodicity of the reports will evolve in the future. For reasons also explained in more detail below, the Postal Service suggests that the reporting basis for many of the metrics initially be at the national level and on a quarterly basis. Once the Commission familiarizes itself with the data and determines more specifically the format and nature of data desired, there may be opportunity to revisit those determinations. The Postal Service is concerned that if such an approach is not established at the outset, it would be compelled to devote its scarce resources to the production of voluminous data files of varying levels of reliability with little discernible benefit to it or the Commission.[12] Also related to the question of the granularity of the data provided, the Postal Service proffers that the degree of granularity will, of necessity, provide a much larger picture of complication, not to mention mismeasurement. As the Postal Service previously stated:

> Complicating these efforts is the necessity to drill down below the national picture to local situations. Quite possibly, the causes of service or efficiency failures are universal, but more likely, they are related to local failures to follow protocol, or to local transportation issues or plant configurations, or to particular mailers and their characteristics, or to other situations that are not uniformly causative. As the Commission has often lamented, sometimes national data are not sufficiently robust to lead to confidence. Going below the national level introduces even more opportunities for mismeasurement, misreporting, or misinterpretation, much less offering the opportunity for a systematic review and determination of root causes and how to fix them. To cite an example based on existing systems, whereas MODS might simply indicate the operation number into which an employee is clocked, IOCS might be able to determine what type of mail is being handled (product as well as piece vs. bundle, for example) and what type of handling occurs. The IOCS readings provide insight, but at a national level. It would be neither feasible nor efficient to expand IOCS to provide robust pictures

[12] The Postal Service appreciates that the Commission, through this CIR, is contemplating additional reporting requirements for the Postal Service beyond those imposed under the current Commission rules of practice. Therefore, it seems likely that the efforts made herein by the Postal Service to identify the possible data to be provided will represent a first step toward framing the requirements, constrained by the Postal Service's ability to provide such data at a reasonable level of detail given limited resources. Additionally, and perhaps as important, it bears noting that the data being provided to the Commission may, or likely will not, be used by the Postal Service plant managers and other operations employees actually performing their day-to-day activities in attempting to run the Postal Service. See, for example, pages 12 to 13 of the Flats Response wherein the Postal Service describes operational realities.

> at local levels or more frequently than on an annual basis. More importantly, it would not be practical to use a system such as IOCS to identify the specific, local, timely failures and then to quantify the improvements following a program change.

Flats Response at 18.

This discussion can now turn to formats more familiar within the regulatory arena. Specifically, in addition the General Ledger and MODS-based files described above that would provide broad pictures of efficiency, the Postal Service offers a means by which to assess the cost implications of changes in postal practices or mail characteristics by reference to existing, albeit modified models. In USPS-FY15-11 PER_OC.xlsx, a model submitted each year as part of the Annual Compliance Report, the various levels of presort and dropship for Periodicals pieces, bundles and containers are mapped through the mail processing system. For each activity modeled, the model estimates the attributable cost, including both direct labor and indirect costs associated with the activity. For each piece level, bundle level and container level, the costs are calculated based on the applicable mailflow (including some "failures" such as reject rates from machines, bundle breakage, etc.). These costs are then multiplied by the volumes of the pieces, bundles or containers applicable, and these are summed to obtain an estimate of the total mail processing cost for Outside County Periodicals. Models cannot include all possible deviations from the expected norm, whether the complications are the result of pieces found in unusual mailflows or as a result of the vagaries of human behavior. Accordingly, the weighted sum cost will not match the total mail processing cost that is developed in the Cost and Revenue Analysis (CRA) report. For purposes of the CRA, Cost Segment 3 General Ledger expenses are grouped by account into cost pools and the volume variable costs therein are distributed to products, including Outside Country Periodicals, through application of the

distribution keys derived from the In-Office Cost System (IOCS). The IOCS distribution keys reflect proportions of time sampled employees are observed handling various products while working in operations associated with the cost pool. In order to maintain the integrity of the costing process from General Ledger through the CRA to the mailflow models and back up again, the weighted sum costs as modeled are adjusted through the application of the CRA Adjustment Factor such that they do match the CRA results in total for Outside Country Periodicals mail processing.[13]

It is possible to take the model in USPS-FY15-11 PER_OC.xlsx and modify it to investigate the impacts of changes to parameters. A version of such a modified model, CIR.1.Attach.2. PER_OC_pinch.xlsx, accompanies the instant filing. This modified model is essentially the same as the original mailflow model used to estimate workshare cost avoidances, mapping the cost of each level of piece, bundle and container traversing various mailflows, including measurable "failures." In order to modify this model for the current exercise, several changes have been made. The first is to "lock down" the CRA Adjustment Factor, which is to say that the calculated value in cell E99 in tab CRA FLATS is turned into a hard-coded number. This is necessary in order to stop the model from self-regulating toward the actual CRA mail processing cost for Outside County Periodicals. The unadjusted Periodicals model filed as part of the Annual Compliance Report is designed to adjust to match the CRA number, but in the current exercise, the intention is to find out how the modeled costs would differ from the

[13] Over the years of mailflow modeling, various theories have been espoused regarding the CRA adjustment factor and whether it indicates the robustness of the model. As models necessarily require simplification, the CRA adjustment factor may be viewed as encompassing the impact of some of the scenarios not modeled. It also encompasses the impacts of activities that are not included in the models; or activities that are included, but for which precise measures are not possible. The adjustment factor would also encompass the impacts of human error or variations in human activities. In the case of the mailflow model for Periodicals, the CRA adjustment factor in FY 2015 was only 1.116, which suggests that the model is robustly mapping the activities and the costs thereof.

CRA cost figure in the event that parameters differed. It is still desirable to include a CRA Adjustment Factor so that every scenario includes the same degree of uncertainty regarding the completeness of the mailflow mapping and the adequacy of the data.

To that end, once the CRA Adjustment Factor is locked down, parameters may be manipulated and the final weighted sum cost can be compared to the CRA cost figure to determine the change as a result of varying the parameters. The new version of the model includes a summary page in tab "PinchPoints" that allows for comparison to the CRA-adjusted costs based on the model and data provided in the most recent ACR. On this page, various parameters may be manipulated and they will replace those currently in the model. The new version of the model will proceed to flow the mail through the activities and new cost estimates will be derived.[14]

For example, if the bundle breakage estimate for bundles in sacks were changed from its current value of 10.36 percent in cell E39 to a condition of perfection, which is to say a value of 0 percent bundle breakage for bundles in sacks, by putting 0 percent into cell F39, the estimated direct labor costs change by $685 thousand, shown in cell F35. The breakdown of that change is shown as the impact on Piece Direct and Piece Allied costs, in cells F29 and F30, of savings as fewer pieces from broken bundles would require unnecessary piece handlings. But the impact of the change in bundle breakage on Direct and Allied Bundle costs would increase as more intact bundles would require handling as bundles. Those impacts are shown in cells F31 and F32 as negative savings.

[14] The model is currently set up to model the impacts of various parameter changes as they affect Direct Labor costs only, but application of the piggyback factors would allow for estimation of the full effect, if desired.

Each of the parameters on the PinchPoints tab can be manipulated in order to view the effect on costs. However, it should be emphasized that manipulating each parameter one at a time and then summing the various impacts would not be appropriate, as the impacts may be contraindicated and could lead to double counting of savings and/or negation of the impact of changes in other parameters. It is also worth noting that the model can quickly be taken into the realm of fantasy by manipulating each parameter to perfection: zero bundle breakage, 100 percent accept rates, 0 percent reject rates, 100 percent coverage, etc. Aside from the fact that this perfection would be unattainable, various possibilities would also be unreasonable. For example, given the relatively low mail volume at some very small plants, the investment in equipment required to attain coverage factors of 100 percent would not be warranted.

The Postal Service considers that the modified mailflow model can be instructive in assessing the impacts of changes and the range of opportunities, and can be used to help determine the potential "bang for the buck" in relation to different areas of focus for improvement. For example, if tackling the issue of bundle breakage (of bundles in sacks) required significant investment on the part of the Postal Service and mailers, and the annual gain from such strife were only $685 thousand, all might agree that there were "bigger fish to fry."

This mailflow model can easily be provided to the Commission on an annual basis, updated each year with the new models from the Annual Compliance Report. The Postal Service acknowledges that the model currently only exists for Periodicals. The current rate structure for Standard Mail Flats does not require the same levels of complexity in the supporting workshare cost avoidance models as the rate structure for Periodicals. The Postal Service has reasonably reliable data on the mail characteristics

of Periodicals with regard to the levels of presort and dropship by piece, bundle and container because rate differences exist for pieces, bundles and containers, and thus, the mailers provide reliable information about their mail preparation. Because a similarly complex rate structure does not exist for Standard Mail Flats (and thus such data are not required in order for the mailer to comply with postal regulations to qualify for particular rates), mail characteristic data for Standard Mail Flats provided in eDocs and mail.dat files are of frustratingly varying and unreliable quality.

The cost models currently provided by the Postal Service to the Commission in support of workshare cost avoidances necessarily use national data. This approach is appropriate based upon current pricing policy that offers the same workshare discounts nationwide. On occasion, the Postal Service has attempted to update various factors in the studies, factors that were not available from machine counts nor from In-Office Cost System (IOCS) or other existing data systems. The lack of those data, even at the national level, from any existing source meant that expensive and time-consuming field observations and measures were required. These types of studies have been performed using sample design intended to develop a nationwide perspective, not to establish individual facility-specific measures. Even so, the Commission has rejected some of the field study results, such as the manual incoming secondary and Post Office walling productivities presented in Docket No. RM2011-5, because the range of variation in the results was considered to be too wide.[15]

[15] In rejecting the productivities, the Commission stated: "The Commission finds that the proposed updates of the manual incoming secondary and walling productivities are not sufficiently likely to improve the results of the letter cost models and does not accept them. The wide range of observed productivities, combined with the relatively small sample sizes, raises serious concerns about the representativeness of the results." PRC Order No. 741 (June 3, 2011) at page 11.

But, as noted in its July 26th Flats Response: the Postal Service “relies on hundreds of thousands of employees of various skill levels and capabilities to process enormous volumes of diverse types of mail through various automated and manual processes, across thousands of facilities.” Flats Response at 12. Thus, the observed variation in the results was probably actual; when measuring individual employees in individual facilities with particular mail in particular circumstances, there will be wide variation. The Postal Service believes that more conversation should take place in order to resolve the question of the value of “granularity”, especially when the Commission itself has indicated that such granularity causes it to question results.

B. The Six Pinch Points

1. Pinch Point One – Bundle Sorting Operations

The first pinch point that the Commission identifies in Chapter 6 of the ACD is bundle sorting operations. As described by the Commission, this pinch point has two components: (1) the movement of bundles to a bundle sort operation, and (2) the bundle sort itself. With respect to the first component, movement to the bundle sort, the Commission identified "time delay between arrival of palletized flats and the initial bundle process"[16] as the relevant "obstacle to improving cost coverage and service performance for flats."[17] This particular activity can also be considered part of the Postal Service's allied operations (and the costs thereof would be encompassed in the allied activity cost pools), which itself constitutes one of the six pinch points identified in Chapter 6 of the ACD. With respect to the second component, the bundle sort, the Commission identified bundle breakage as the relevant obstacle.

Because this pinch point implicates two distinct sub-issues – delay before the primary operation begins, and bundle breakage – the Postal Service responds to the Commission's directive by addressing each separately below.

<u>Delay in Reaching the Initial Bundle Process</u>

The first sub-issue implicated by the bundle operations pinch point is delay between the time that mail is inducted and the initial bundle sort. The Postal Service's visibility into the flats-specific cost and service impacts of its allied operations is limited by the nature of allied work.

[16] FY15 ACD at 167.

[17] *Id.* at 165.

Delay at this stage affects flats service performance when it causes mail to fail applicable service performance standards. Various factors can affect the timely movement of mail to the initial bundle process. These include the use of paper-based drop-shipment forms, which require time-consuming manual intervention by postal employees in order to process drop-shipment arrivals, as opposed to electronic documentation (eDoc); the yard management of drop-shipment appointments, in particular at high-volume postal facilities; dock assignment and staging for drop-shipment appointments; and the timely unloading of drop-shipment mailings.

- ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.***

  Information gathered at this stage is processed by the Facility Access and Shipment Tracking system (FAST), which the Postal Service uses to document, monitor, and manage drop-shipment appointments; the Transportation Information Management Evaluation System (TIMES), which the Postal Service uses to manage its surface transportation; and the Yard Management System (YMS), which the Postal Service uses to manage yard operations at Network Distribution Centers (NDCs). The Postal Service also gathers information via Surface Visibility (SV), a mobile-scanning application through which employees use handheld mobile devices to scan barcodes on trailers, handling units, and containers as mail moves through the mailstream. The SV system tracks the movement of mail in the dispatch and transportation process by linking those scans to create origin-to-destination visibility.

FAST provides the Postal Service various points of visibility into the timeliness of the mail acceptance and induction processes. These are:

- Total number of drop-shipment appointments scheduled for a particular facility. Appointments can be input into FAST by the mailer or by the facility.
- Scheduled arrival time of a given drop-shipment.
- Actual drop-shipment arrival time. This information is recorded through manual scanning, and is fed into FAST and SV. At NDCs, this information is processed by YMS.
- Dock arrival time. This information is recorded through manual scanning.
- Initiation and completion of the trailer unload process. Each is recorded through manual scanning.
- Mailer-reported incoming mail volume. This information is recorded in the mailer-submitted drop-shipment documentation, including eDoc, and is used for purposes of FAST.[18]
- Actual number of containers unloaded. This information is recorded through manual scanning.

In addition to the visibility described above, the Postal Service also uses Work-In-Process (WIP) metrics that are available to managers in the form of WIP cycle time reports via the Service Performance Diagnostics (SPD) tool. The SPD tool leverages data from Business Intelligence Data Store (BIDS) and the Seamless Acceptance and Service Performance System (SASP), which are backend systems used for the purpose of Service Performance Measurement. SASP takes mailing information from PostalOne!, data from SV and FAST showing actual entry time, and scan data collected by automated equipment to

[18] While this information helps managers anticipate potential workload to some extent, it does not give a complete picture of incoming mail volumes because not all flats mailers are required to schedule FAST appointments.

perform service performance calculations. SASP then sends the aggregated data to BIDS, which aggregates the data further. SPD accesses the data from those systems to generate reports that can be used to help diagnose service issues.

WIP reports show the median hours between the actual entry time and the Automated Package Processing System/Automated Parcel and Bundle Sorter (APPS/APBS) bundle scan for Standard Mail flats entered with a Destination Sectional Center Facility (DSCF) entry discount. Similar data are available for mail entered at Origin, mail entered with an Area Distribution Center (ADC) or a Destination Network Distribution Center (NDC) entry discount, and also for Periodicals. Data are available at both the national and facility levels. There are other WIP metrics available as well. For example, another WIP metric shows the time elapsed from the actual entry time to the initial automation piece level scan. These statistics are calculated only for Full Service Intelligent Mail barcode (IMb) mail that is in service performance measurement.

The data described above allow the Postal Service to measure the amount of time that passes from the arrival of a drop-shipment to the initial bundle sort, as well as various segments in between, such as time elapsed between when a truck arrives and when it is unloaded, the amount of time it takes to unload a specific mailing, or how long the truck was staged in the facility yard. These data also let the Postal Service see the actual number of pallets unloaded at a given site in comparison to what the mailer reported when scheduling the appointment.

The Bundle Visibility program is another source of information that provides some visibility into allied and other mail processing operations. The Bundle Visibility program leverages scan data collected from carrier route bundles at mail processing plants and delivery units. These data are used to compile reports that are currently focused primarily on scanning compliance to ensure that the data available are complete enough to provide analytic value. However, the Postal Service has been able to use Bundle Visibility information to track where carrier route bundles are actually located in the process, from acceptance to final processing at delivery units.

Going forward, the Postal Service will continue to leverage the data and systems described above to improve service performance associated with delays between the time that mail is inducted and the initial bundle sort. These data and systems will provide the Postal Service with actionable data to address root cause issues with respect to cycle time between mail induction (acceptance) and the first sortation on bundle processing equipment. Additionally, these data can be arrayed to provide focus on the highest-opportunity geographic areas, processing plants, specific mailers, class of mail (Periodicals, Standard) and induction day of the week.

- ***Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.***

The Postal Service currently leverages Work in Process (WIP) metrics available through the Service Performance Diagnostics (SPD) tool to measure cycle times of flat bundles through observed scanning as the mail flows through

the postal network. WIP cycle time show the median hours between the actual entry time and the APPS/APBS bundle scan for Standard Mail flats and Periodicals flats for the following entry types -- i.e., volume entered with a Destination Sectional Center Facility (DSCF) entry discount, mail entered at origin, and mail entered with an Area Distribution Center (ADC) or a Destination Network Distribution Center (DNDC) entry discount. Data are generated at both the national and facility-specific levels. There are other WIP metrics available as well. For example, another WIP metric shows the time elapsed from the actual entry time to the initial automation piece level scan. These statistics are calculated only for Full-Service Intelligent Mail Barcoded (IMb) mail that is in service performance measurement.

The Postal Service proposes to provide the following metrics: median elapsed time from entry to bundle scan and median elapsed time from entry to piece scan. These data can be provided on quarterly basis at the national aggregate level a reasonable time after the conclusion of quarter 2 of FY17. The As a reminder, these data are currently available only for Full-Service IMb mailers.

- ***Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.***

One way the Postal Service can improve its visibility into delays that occur before bundles reach the initial sort is by improving the data collection process. For instance, the Postal Service is investigating enhancements to the software supporting the SV mobile scanning device that would allow it to show screen prompts guiding personnel through key steps of the drop-shipment process,

including prompts to perform the various required scans. In addition to improving the efficiency and timeliness of the drop-shipment and induction processes, such enhancements may promote more consistent data collection.

The enhancements also include software improvements to the SV system that enable the consolidation of existing raw data into more user-friendly reporting via Informed Visibility, thus allowing the Postal Service to make better use of the data it already has. Such reporting could provide Postal Service management with ready access to metrics such as average time between scheduled and actual arrival at the postal facility yard; average time between arrival at the yard or dock and the initiation of the unload process; and average duration of the unload process. This information could be filtered by postal administrative Area, facility, and shipper, and could be used to identify the day of the week with the highest cycle times. The Postal Service could use this information to monitor the relative performance of its facilities, for example, by identifying the highest and lowest performing facilities in terms of processing times.

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

In order to support development of a comprehensive plan to improve flats service performance and cost coverage, an ideal system would be a network of seamlessly interconnected systems that would gather, analyze, and provide data reporting for each operational step in the mail processing flow, for each plant and delivery post office. Such a system would need to provide robust visibility into activities and potential issues at each pinch point at a granular level for all

automation and manual process steps. It would leverage advanced methods such as radio-frequency identification, improved optical character readers, and other technologies designed to recognize, capture, transmit, store, and analyze information reliably. While real-time intervention to improve service and reduce cost is a laudable goal in itself, ideally, reviews of historical service performance and root cause diagnostic data could also be used to measure trends over time and to make comparisons between districts, facilities, and types of mail. In order to fix service performance issues associated with a particular problem, the data would need to allow for a more predictive analysis, so that problems could be prevented or corrected early enough in the process to meet service standards.

Finally, an ideal data system would necessarily have to be complete and reliable, but also easy to feed, meaning that the data elements would need to be automatically collected into the system, without human action required and in a tamper-proof manner. The objectivity and accuracy of the information should be beyond reproach. Every postal data system and its associated data would be network-connected, allowing them to constantly send and receive data, and to constantly create and provide a predictive aggregate of each other's data to a granular level ("internet of things"); and those data and information would be made available to supervisors and employees in a way that enables them to calculate and pursue the optimal balance of cost savings and service performance in any given situation. In addition, the system could not require human intervention that would distract the postal employee from what should be his/her primary task: to process, transport, and deliver the mail according to expectations. In other words, the primary job of the postal employee – including

supervisors and other personnel – should be to handle the mail, not to feed data systems. In an ideal system, it should be easy to obtain the data without adding to the workload of postal employees.

Bundle Breakage

Bundle breakage is the second component of the bundle operations pinch point that the Commission identified in Chapter 6 of the ACD. Bundles can break apart before they arrive at postal facilities, when they are moved to the bundle sort by postal personnel, and during the bundle sort itself.

Loose pieces from a broken bundle must receive additional handling. Depending on where and how a bundle breaks, the Postal Service must manually re-bundle the single pieces, manually prepare the single pieces for flats processing on automated sorting equipment, or manually sort the single pieces. This additional handling increases processing costs and can negatively impact service performance.

- ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.***

There are three types of bundle breakage data which are pertinent to the concerns raised by the Commission. These are: (1) the incidence of bundle breakage; (2) the impact of bundle breakage on service performance; and (3) the costs arising from bundle breakage. The availability of granular data for each of these is discussed in this section.

Informed Visibility (IV)

The Postal Service uses IV to process Full Service IMb scan data on bundles of Standard Mail and Periodicals (including combined bundles containing

both Standard Mail and Periodicals pieces). IV uses Full Service data from scans collected by automated equipment during the bundle sorting process, and interprets the information in the mailer's eDoc to record nesting information, i.e., information that associates mailpieces with the mail containers (in this case, bundles) to which they have been assigned.[19]

As described above with respect to the generation of WIP reports, PostalOne! provides mailer manifest information, and both SV and FAST provide actual entry times (used for Start-the-Clock purposes) to SASP. Using these data in conjunction with scan data from automated equipment, SASP performs the service performance measurement calculations. Once those calculations are done, aggregated data are sent to BIDS. The Postal Service utilizes data from BIDS for bundle breakage analysis.

The operational definition of breakage in IV is when Full Service IMbs from three or more pieces originating from a single bundle are scanned individually by the bundle sorting equipment. Thus, a bundle containing pieces in service performance measurement is deemed to have broken in IV only when it breaks during processing on the APPS or APBS, and Full Service IMbs on the loose pieces are actually scanned by those machines.

These systems have noteworthy limitations regarding bundle breakage detection, however. In order for IV to identify bundle breakage, the bundle must come from a Full Service IMb mailing and must break during a specific operation,

[19] The Commission suggested that the Mail History Tracking System (MHTS) may be useful for gaining additional insight into where and when bundle breakage occurs. FY15 ACD at 167. However, MHTS does not receive data from mailer-submitted eDocs, and therefore does not have information indicating which pieces are in each bundle or tray. MHTS is typically only utilized for single piece analysis. BIDS receives the same information that MHTS receives from the machines, as well as information from mailers' eDocs, so that system is preferable.

that is, on equipment capable of collecting IMb scans. However, mailers are not required to submit Full Service mailings. In addition, bundles do not always break on automated equipment. Bundles can break prior to arriving at Postal Service facilities, while still in mailer-submitted containers. Bundles can also break as they slide into rolling stock after sortation.

In sum, IV currently cannot measure instances of breakage in which bundles were not part of a Full Service IMb mailing; or are worked manually or on equipment that does not capture IMb scans; where bundles are reassembled via manual intervention and ultimately processed as intact bundles; when bundles break in a manner other than on the machine; and instances in which postal employees apply their experience and judgment to identify at-risk bundles and divert them from the bundle processing operation prior to breakage, as a cost-avoidance decision.

Electronic Mail Improvement Reporting (eMIR)

Although not currently a tool for measuring service performance, the Electronic Mail Improvement Reporting (eMIR) system is another data system that contains information related to bundle breakage. eMIR is a web-based tool that postal employees use to report problems with the make-up of mail that is presented to the Postal Service. eMIR is used to internally communicate serious mail quality issues and recurring problems, including bundle breakage, when it is determined that the quantity of improperly prepared mail is such that the issue will impact the efficient processing and/or delivery of the mail. Postal Service personnel manually enter issues into eMIR via PostalOne!, which then routes the

data to the Business Mail Entry and Business Service Network data systems for after-the-fact follow-up with mailers.

However, as stated above, eMIR is not currently a tool for measuring the service performance impacts of breakage. As an initial matter, eMIR does not provide a complete picture of the scope of breakage. Issues are manually documented and logged by postal personnel after they observe instances of breakage during mail processing. Whether an instance of breakage is entered into eMIR is subject to the time that a particular employee has available and his or her judgment of whether the issue is serious enough to warrant recording. Thus, not all instances of breakage are reported. In addition, eMIR is not set up to tie back to the data systems that are related to service performance measurement.

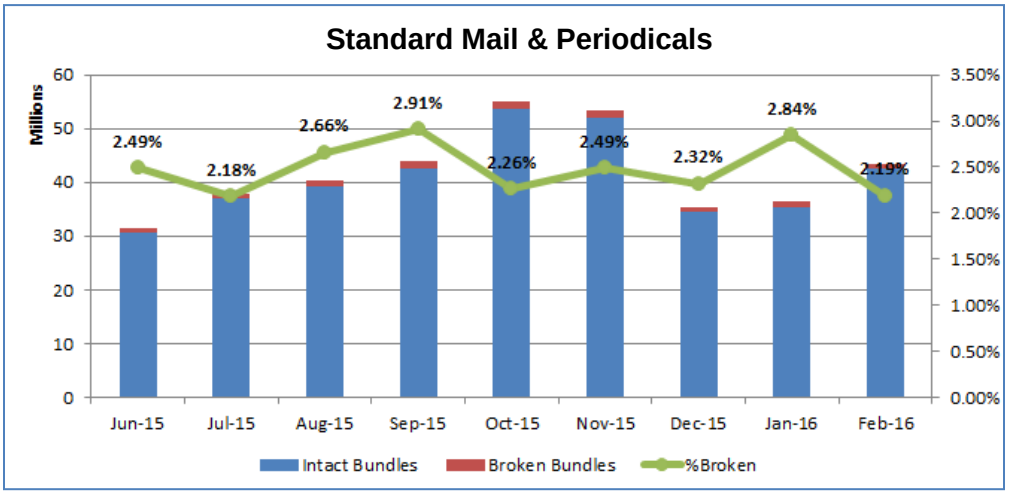
Bundle Breakage Visibility Reports

Using the information about bundle breakage that is stored in PostalOne!, SV, IV, and eMIR, Postal Service managers have the ability to create Bundle Breakage Visibility Reports for Standard Mail and Periodicals bundles (including those which combine Standard Mail and Periodicals). These reports are created by manually gathering data from the aforementioned sources, and show bundle breakage volumes by month, by facility, and by mailer. The Postal Service is currently in the process of developing a bundle breakage dashboard to provide more robust visibility into bundle breakage to management in the field.

An example of this report is depicted in the image below, the left vertical axis which identifies the total Full Service IMb bundle volume that gets processed

on bundle sorters, and the right vertical axis represents the percentage of bundles broken during APPS/APBS processing out of that total. The legend on the bottom of the chart reflects bundles that were intact or broken, as represented by the blue and red colors respectively, with the green trend line tracking breakage percentage over time.

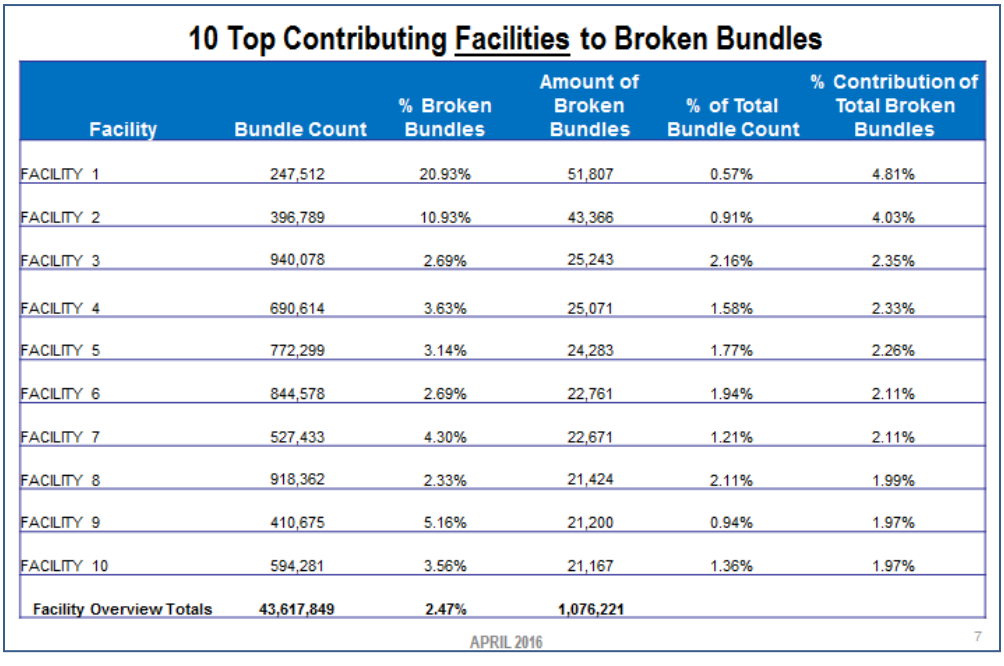
Figure 1: Example of Full Service IMb Bundle Breakage Visibility Report For Bundles Broken During APPS/APBS Processing



Bundle Breakage Visibility Reports can also provide data at a more granular level of detail, including, the total number of bundles processed on APPS/APBS by a facility and the percentage that were identified as broken, the number of bundles processed by a facility as a percentage of total bundles processed nationwide, and the number of bundles identified as broken at a facility as a percentage of total bundles identified as broken nationwide. See Figure 2 below as an example.[20] This information can also be broken down by machine type, by mail service provider (MSP), or by mail owner.

[20] To enhance the Commission's understanding, the Postal Service has provided an illustrative example of an actual facility-specific Bundle Breakage Visibility Top 10 Report. Information that would identify

Figure 2: Sample Full Service IMb Bundle Breakage Visibility Top 10 Report



10 Top Contributing Facilities to Broken Bundles

Facility	Bundle Count	% Broken Bundles	Amount of Broken Bundles	% of Total Bundle Count	% Contribution of Total Broken Bundles
FACILITY 1	247,512	20.93%	51,807	0.57%	4.81%
FACILITY 2	396,789	10.93%	43,366	0.91%	4.03%
FACILITY 3	940,078	2.69%	25,243	2.16%	2.35%
FACILITY 4	690,614	3.63%	25,071	1.58%	2.33%
FACILITY 5	772,299	3.14%	24,283	1.77%	2.26%
FACILITY 6	844,578	2.69%	22,761	1.94%	2.11%
FACILITY 7	527,433	4.30%	22,671	1.21%	2.11%
FACILITY 8	918,362	2.33%	21,424	2.11%	1.99%
FACILITY 9	410,675	5.16%	21,200	0.94%	1.97%
FACILITY 10	594,281	3.56%	21,167	1.36%	1.97%
Facility Overview Totals	**43,617,849**	**2.47%**	**1,076,221**		

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Thus, Bundle Breakage Visibility Reports can be used to determine if a large percentage of a given mailer's volume results in broken bundles, or if a particular facility or piece of equipment is experiencing excessive instances of breakage. The Postal Service and industry stakeholders use these data to gain insight into root causes of bundle breakage, to identify overarching impacts of bundle breakage on service, and to investigate top opportunity facilities, locations, and machines in an effort to develop strategies to address bundle breakage.

specific postal facilities is redacted, as the disclosure of the illustrative data would, if tied to specific facilities, consist of information of a commercial nature which under good business practice would not be publicly disclosed. 39 U.S.C. § 410(c)(2). Since the screen shot from the report is provided for illustrative purposes only, and not for purposes of demonstrating compliance or to respond to a specific Commission inquiry, the Postal Service submits that the underlying, unredacted documentation need not be furnished under seal.

Measurement of Costs Arising from Bundle Breakage

With respect to measurement of cost impacts associated with this pinch point, bundle breakage costs are measured implicitly in the flats costs models (USPS-FY15-11) and included in the costs of pieces in each rate category. In concept, these model costs could be used along with information about the incidence of bundle breakage to make estimates of costs arising from bundle breakage. However, such breakage costs vary by presort level of the bundle (prior to breaking), mailer, container type, class of mail, method of sortation after breakage, and the treatment necessary to put the mail back in the mailstream, among other variables. Because the data on the incidence of bundle breakage do not capture the extremely variable breakage types/scenarios and mail processing stages at which bundle breakage occurs, the full scope and cost of bundle breakage are not currently measurable at a more granular level. In addition, the following factors also limit the use of the models in USPS-FY15-11 to develop any specific cost impacts as a result of breakage:

- Mail Handler labor cost to collect loose pieces: Postal mail handlers perform a multitude of bundle processing activities to address broken bundles, including re-strapping bundles, collecting loose pieces and placing them in flats tubs, and loading the feed system for the bundle operations. None of these tasks are explicitly measured in USPS-FY15-11.

- Allied operations transportation labor cost of loose pieces: The Periodicals cost model (USPS-FY15-11) uses a productivity of 21.3 pieces of mail transport equipment per hour (MTE/Hr.) for general movements of MTE from one spot to another within a facility, along with an estimate that there are 1251 pieces of mail per MTE to develop unit costs for such movements. Loose pieces from broken bundles are collected from wherever these loose pieces can be identified and safely extracted. Thus, neither the generic MTE productivity nor the generic pieces/MTE values used in the cost models may be reflective of MTE used in the transport of loose pieces collected from broken bundles.

The Postal Service will continue to use the data produced from BIDS, eMIR and the "Bundle Breakage Visibility Reports" to identify root cause(s) and to develop corrective measures to improve service and costs associated with bundle breakage. Through identification and isolation of issues pertaining to specific mailings (mailer owners and mail service providers), processing plants and entry days of the week, the Postal service will continue to collaborate with the mailing industry to reduce bundle breakage occurrences and associated costs.

Reduction in bundle breakage will reduce rehandling (rework) costs and can improve cycle times through the distribution process, thereby improving service performance.

- ***Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.***

Bundle Breakage Service Performance

The Postal Service uses Informed Visibility (IV) to process Full-Service IMb scan data on bundles of Standard Mail and Periodicals. IV uses Full-Service data from scans collected by automated equipment during the bundle sorting process, and interprets the information in the mailer's eDoc to record nesting information, i.e., information that associates mailpieces with the mail containers (in this case, bundles) to which they have been assigned. The operational definition of bundle breakage in IV is when Full-Service IMbs from three or more pieces originating from a single bundle are scanned individually by the sorting equipment. Thus, a bundle containing pieces in service performance

measurement is deemed to have broken in IV only when it breaks during processing on the APPS or APBS, and Full Service IMbs on the loose pieces are actually scanned.

The Postal Service proposes providing the following metrics: percentage of bundles broken by class, quantified as described, for Full Service bundles with three or more individual pieces scanned during the bundle sort on APPS or APBS. The data can be provided on quarterly basis at the national aggregate level a reasonable time after the conclusion of quarter 2 of FY17. The Postal Service suggests that reporting initially be at the national level and on a quarterly basis for the same reasons expressed above on page 2. It is important to note that, in order for IV to identify bundle breakage, the bundle must come from a Full-Service IMb mailing and must break during a specific operation, that is, on equipment capable of collecting IMb scans. However, mailers are not required to submit Full Service mailings. In addition, bundles do not always break on automated equipment. Bundles can break prior to arriving at Postal Service facilities, while still in mailer-submitted containers. They also can break as they slide into rolling stock after sortation.

Bundle Breakage Cost Impact

In the CIR.1.Attach.2. PER_OC_pinch.xlsx workpaper, bundle breakage percentages are presented separately for bundles presented in sacks and on pallets, for second handlings at the plant, and for bundles flowing from the plant to the delivery unit that may have broken as they are deposited into mail transport equipment (such as hampers or wiretainers). The cost impact of changes in each of these parameters may be estimated by changing the current

percentages to reflect new data or assumptions. It is worth noting that the bundle breakage measures in the current cost avoidance mailflow models will not necessarily match those reflected in the IV data. There are several reasons why this would be so. First, as noted above, the IV data are necessarily only for Full-Service IMb mail, and only for Full Service IMb bundles for which subsequent scans on the pieces theoretically contained therein are obtained on bundle sorting equipment. Second, the data in the cost avoidance mailflow models are from field observations obtained in an expensive and time-consuming study aimed at obtaining an aggregate picture but with specific operations targeted. While the IV data can only measure inferred breakage of Full Service IMb mail, the field study measured breakage at all bundle processing nodes. Breakage was measured at the following sources: sack opening units, APBS/APPS induction stations, APPS singulation, pieces from broken bundles culled prior to keying, pieces from broken bundles worked as individual pieces on the APPS/APBS, pieces from intentionally broken bundles (bundles containing pieces that the APBS operator deemed nonmachinable on the APPS/APBS), bundles breaking post-APPS/APBS sortation as they were being deposited into mail transportation equipment and pieces breaking in manual bundle sortation operations.

It is also worth noting that while this pinch point was called “Bundle Breakage,” there may be additional costs that are incurred as a result of efforts that divert mail in an effort to prevent questionable bundles from being broken. In other words, when postal personnel detect that one or more bundles in a certain mailing break in certain operations or on certain equipment, the remaining

bundles from that mailing may be diverted from that operation or equipment in order to avoid compounding the problem. Similarly, postal personnel may, based on their familiarity with amenable bundle characteristics and/or familiarity with bundle preparation practices that result in more fragile bundles, proactively initiate action to shift bundles likely to be broken in a given operation to a different mailflow. While these bundles do not break, *per se*, they are moving from their intended and desirable mailflow. Currently such costs, and similar costs related to attempts to re-strap/re-band bundles, would be reflected in measured operation productivities but not separately identified in such productivities. Isolating and measuring such activities would be difficult but, to the extent that these activities may become measurable, the cost impact thereof may be estimated.

- ***Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.***

As previously mentioned, the Postal Service uses the eMIR system to document and follow up on bundle breakage issues. However, the process supporting this system is largely manual, requires the use of multiple data entry platforms, and is not seamlessly connected to mail processing equipment or to all interdependent or interrelated reporting systems. By automating current data entry, and by extending current eMIR data-flow capabilities, the Postal Service could potentially attain a higher volume of issue reporting and more robust, actionable data to address at-risk mail.

For example, such eMIR system enhancements could be supported by a process under which drop-ship induction employees use existing mobile scanners to:

- photograph and document bundle breakage issues (as well as other mail quality issues);
- scan IMbs associated with the mailing and its containers to determine the mailer's identity;
- make screen selections of concise mail quality issue descriptions; and
- submit the information directly to the eMIR system from the mobile device.

The eMIR system could potentially be designed to organize the uploaded data into a comprehensive report, which would be tied to the mailer's appointment record within the FAST system, to the mailer's permit record within PostalOne!, and to the mailer's Business Service Network file for follow-up. Such an enhancement could possibly even provide the Postal Service with near real-time information about at-risk mailings.

Another potential step in this direction would be to enable eMIR to aggregate near real-time information on breakage received from not only manual scans, but also automated processing equipment, such as the Automated Parcel Bundle Sorter (APBS) or Automated Package Processing System (APPS). The following is an illustration of how a near real-time system might function when three or more individual Full Service IMbs from within a bundle are detected on the bundle sorter.

- Breakage details and photographs could be sent to eMIR via a Postal Service mobile device equipped with the eMIR application.

The device could submit photographs, a 99M barcode[21] scan, and relevant information regarding the incident, such as on-screen selections of concise mail quality issue and breakage descriptions, to the eMIR data system as an eMIR report.

- Bundle breakage detection data from the bundle sorter could also be collected by the Informed Visibility (IV), and pushed to the eMIR system as a breakage event alert for the identified mailer and tied to the eMIR report.

- The same communication methodology could potentially occur downstream when similar IMb hits occur.

- The eMIR system could then aggregate this information and interface with PostalOne! to help determine the circumstances under which mailings may be at risk of experiencing bundle breakage.

- The eMIR system could also communicate the information to Business Service Network systems for follow-up action and possible monitoring of a customer's compliance with mail preparation standards.

o ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

The ideal data system for Bundle Operations would have the general characteristics described above at pages 28-29.

[21] A 99M barcode is an Intelligent Mail container barcode (IMbc) placed on mailer-prepared pallet labels that, among other information, uniquely identifies pallets and similar containers, the mail owner, and mail preparer or consolidator.

2. Pinch Point Two – Low Productivity on Automated Equipment

The Postal Service measures productivity as pieces (bundles of flats or single flat mail pieces) processed per workhour incurred to process those pieces (pieces divided by workhours equals pieces per workhour). MODS (Management Operating Data System) and MPV (Mail Processing Variance) are the two tools used by the Postal Service to measure, track and report productivity.

It should be noted that improving flat mail productivity during a period of continued volume declines remains a significant challenge and opportunity for the Postal Service. There are several fixed activities associated with processing flat mail volumes that do not decrease commensurately with declining mail volumes. These start with mail acceptance at a plant's dock or Business Mail Entry Unit (BMEU), and continue throughout the entire processing and delivery cycle. For example, a single run of mail on an Automated Package Processing System (APPS) machine requires the same number of sorting containers to be placed at the machine for operation, the same number of bin identification placards to be placed on the sorting containers, the same number of employees to staff the various workstations on the machine and the same amount of time to "break-down" and dispatch the containers on a machine after the run is finished, regardless of the volume of mail processed. When the workhours associated with these fixed activities do not decrease in direct proportion to the decrease in flat mail volume per machine run and per machine bin, the resulting productivity decreases.

Flat mail volume declines are also causing lower density of mail in postal operations generally – e.g., less volume per zone or scheme sorted per run. This leads to fewer pieces per container, which tends to increase the cost per piece of container handlings, and similarly spreads the cost of other relatively fixed activities such as

setting up and taking down sorting runs over fewer pieces. However, this does not necessarily imply that low volume plants necessarily have low density or productivity,[22] rather, that all plants face cost pressure from lost economies of density.

Productivity is simply a measurement of workload processed per workhour spent in a specific MODS (Management Operating Data Systems) operation. Variance Programs are management models that provide complement, workhour, productivity, workload, and route and delivery analysis. Variance models calculate actual versus earned performance against standardized target productivity expectations and trends performance from national results to the unit level. Variance models utilize integrated data to identify workhour savings opportunities in a relevant and actionable performance management platform.

In general, when productivity levels decrease, costs go up, as previously explained by the Postal Service, and as can be demonstrated in the accompanying file, CIR.1.Attach.2. PER_OC_pinch.xlsx. As also previously noted, when volume in specific operations or classes of mail within these operations decrease, productivity decreases. This is because every operation currently measured in MPV (Mail Processing Variance) has a setup, dispatch, and change over times that is minimized to the extent possible but is present nonetheless. A container of mail is still required to secure the mail for transport within each facility, as well as to and from origin and destinating facilities, no matter the fullness of the container. In order to capture economies of scale and mitigate cost increase, as stated previously, the Postal Service in some cases may be delaying

[22] A low-volume facility may be more or less productive than a high-volume facility for a given activity, depending on a number of factors such as the number of distinct processing runs, facility configurations, and the like. The effect of broad-based volume declines is generally to reduce volumes throughout the system, so that all facilities would see less volume per run, per average container, *etc*.

processing until it has reached a certain volume. This delay reduces time associated with total number of startups, dispatches, and changeovers, while filling containers to the extent possible.

- ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.***

Productivity Measurement, Tracking and Reporting Systems

Management Operating Data System

MODS tracks the volume of mail processed, the workhours used to process that volume, the productivity associated with processing the volume and the Operation Number receiving the workload credit and the workhours incurred. Operation numbers are specific to the type of mail processed. For example, Operation Number 141 is used to account for and track the processing of Outgoing Primary Flat Mail on an AFSM 100-ATHS/AI. (Automated Flat Sorter Machine with auto-induction). Operation Number 246 is used to identify the processing of Incoming Periodicals Flat Mail Bundles on a Dual Induction Automated Package Processing System.[23]

Mail Processing Variance (MPV)

MPV models utilize integrated data to identify savings opportunities in a relevant and actionable performance management platform. Similar to MODS, MPV tracks mail volumes, workhours and productivity by Operation Number. However, MPV also measures, tracks and reports "actual" versus "earned" workhour performance against

[23] MODS data are provided to the Commission as part of the Annual Compliance Report, see, for example, USPS-FY15-23. Additionally, the Postal Service provided MODS data by plant, operation, and tour in USPS-FY15-NP35.

standardized target productivity expectations and trends performance from national results to the unit level.

Earned hours represent the number of workhours that should be used to process mail volumes at target productivity rates. Actual workhours used to process actual mail volumes are divided by the earned workhours for the same volume, based on established productivity targets. The result is expressed as “percent achievement” to the target. The difference between the actual percent achievement and 100 percent of the target is defined as the “variance to target.”

Web End of Run (WebEOR)

WebEOR is a server-based software application that stores End-of-Run (EOR) data from mail processing equipment (MPE). Data collected from each “run” of mail volume on equipment that processes flat mail such as an APPS, Automated Parcel and Bundle Sorter (APBS), Flats Sequencing System (FSS) and Automated Flat Sorting Machine (AFSM) 100, include volume processed and machine and operational hours used to process that volume. Throughput per hour performance is calculated by dividing the pieces of mail processed by the number of equipment run hours. Throughput per hour performance is a contributor to productivity performance as it is indicative of the volume of mail processed through mail processing equipment in a given time frame, most commonly, per equipment or operational hour (whereas productivity is the volume of mail processed per employee workhour).

Run Plan Generator (RPG)

RPG is a report that is generated from WebEOR. It is the primary tool the Postal Services uses to compare actual versus planned performance for each run of flat mail bundles on the APPS and APBS and to plan each run of single piece flats on the FSS

and AFSM100. Specific metrics that are measured, tracked and reported include mail volume, equipment and operational hours (not employee workhours), and planned start and end times for each run. Additionally, throughput per hour performance, as measured by pieces processed per hour, is provided in the RPG reports. As noted under WebEOR, throughput per hour performance is a contributor to productivity performance (whereas productivity is the volume of mail processed per employee workhour).

Time and Attendance Collection System (TACS)

Workhours are measured by the TACS, which is designed primarily to collect the employee data needed to process payroll disbursements each pay period. TACS is also configured with a list of 3-digit operation numbers to allocate workhours to particular Labor Distribution Codes (LDCs). The operation numbers are standardized across the nation, and provide the basic mechanism to track the number of workhours dedicated to a given operation, including Bundle and Flats processing. There are five basic types of clock rings that can be made on the Electronic Badge Reader (EBR). When an employee performs the Begin Tour and In-from-Lunch rings, the employee inputs the appropriate 3-digit operation number that corresponds to his or her assignment, or hits a button on the EBR that is preprogrammed with the most commonly used operations. If an employee does not select a 3-digit code, the clock ring operation defaults to the employee's base (default) operation. The End Tour and Out-to-Lunch rings remove the employee from the assigned operation number. The Move ring is used to reassign an employee to a new operation number, and by default, removes the employee from the previously assigned operation. The TACS system provides the raw data used to calculate the number of hours clocked into by an employee on any specific operation,

assuming proper clock rings and Move rings. For distribution performed at a mail processing plant, the TACS information is transferred to the Management Operating Data System (MODS).

Going forward, the Postal Service will continue to use MPV and WebEOR to identify gaps in actual performance versus target performance, thereby enabling the development of solutions for root causes and ultimately improving productivity. As the accuracy of planning mail volumes and the optimum windows of operation coupled with the execution of those plans improves, efficiencies will improve commensurately. One challenge which must continue to be addressed is the fixed costs associated with supporting flats mail operations while we remain in an era of declining flat mail volume.

- ***Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.***

Low Productivity on Automated Equipment Service Impact

Currently, the Postal Service does not have a metric that indicates service impact due to low productivity on automated equipment. However, there are myriad of diagnostic tools and reports available as mentioned above that the Postal Service leverages to determine the root causes and improve service.

Low Productivity on Automated Equipment Cost Impact

In the CIR.1.Attach.2. PER_OC_pinch.xlsx workpaper, the actual national average scrubbed productivities by machine and operation are presented. These productivities may be replaced by alternative estimates or targets and the cost impact thereof may be determined.

- ***Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.***

Productivity concerns may impact service performance of flats if mail is held too long for processing in order to maximize the volume of mail processed in a processing run. Similarly, mail which does not receive the expected processing associated with its mail preparation and workshare classification may lead to productivity issues. One such example is mail expected to be processed on FSS, but which is not. Other examples are mail recycling or looping through operations unexpectedly. There may be a negative correlation between key productivity metrics and service performance, indicative of trade-offs between the two.

In order to improve visibility into flat productivity and service performance, we would need to continue working with the mailing industry to increase the number of Full Service IMb mailers. This will provide our data systems with the nesting information, including piece and bundle detail information that would allow us to track every piece through the automated process. The Postal Service would also need to expand machine capability to provide nesting information at the container level. Pairing the nesting information with the Surface Visibility detail provides complete visibility through the processing and transportation. This would allow us to have the capability to scan and assign each piece into the equipment used to move and transport the mail through the plant from machine to machine and then from the plant to its delivery destination. Each time the mail is either placed in or removed from equipment the container would have to be scanned along with the placard that has the pieces nested to them. The Postal

Service would then identify “events” in this category To quantify the impact on service performance, the Postal Service would then need to define the “event” in the expected operating path for each type of flat, based on the mail class, service standard, sortation level, entry point and entry day of week, and destination. The expected operating path would define the expected operations the mail should go through at origin and destination plants.

By building the “events” into the tracking system, each piece of mail in measurement could then be assessed against its expected operational path to identify whether deviations occurred. Deviations from the expected processing pattern could then be identified based upon whether the deviation occurred during acceptance, processing or destination. Missent mail having scans indicating that it was sent to the wrong facility could also be identified and attributed to this pinch point. Mail experiencing these issues would be identified as having a productivity-related issue, and if the root cause analysis indicated that this issue was the most likely cause of a service failure, the impact of this root cause could be quantified. Because the data would be available at the measured mail piece level, information could be available for aggregation to the origin and destination facilities involved, along with other potential aggregation levels useful for identifying failure patterns such as day of week, sortation level, *etc*. When Surface Visibility is fully implemented in all plants, the Postal Service will be able to Link its FAST (Facility Access and Shipment Tracking) programs so that it could track each Flat from Acceptance to Mail Processing to Transportation to Delivery using Informed Visibility. The limitations to process will continue to be the Postal Service’s ability to attach real workhours to each

"event." The Postal Service will be able to detect overall productivities and some of the processes that may be impacting them, but not to the granular level needed to drive the reduction of workhours in a singular "event."

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

Although the Postal Service is moving closer and closer to an ideal system in automation, there are still limitations with our current data. In an ideal data system, every operation would be capable of detecting every mail piece processed. Detection could be in the form of direct piece observation, such as a barcode scan of individual pieces, or by nested detection, the detection of an item (such as a bundle or tub) or container (such as a wiretainer, hamper, APC or pallet) containing individual pieces. In addition to detection, the ideal system should be able to inform on the disposition of each piece handled in the operation, that is, whether the piece was successfully handled or not and where (meaning what future operation or container) the piece was sent. The ideal system would be able to inform management when pieces are diverting from the desired/intended flow and should give management insights into the cause of the failure so the process could be corrected.

Equally important as ensuring the proper flow of mail would be informing management of the efficiency of each operation. Apart from indicating the costs by operation, an ideal system would inform management on the component activities within each operation. Currently, through the Management Operation Data System (MODS), the Postal Service can quantify the labor time clocked in to each operation, but this system does not inform management of the time

consumed by activities within operations. Each operation is composed of a set of activities within the operation. The operations could, for example, be broken down into:

- Mail Acceptance – Dock Operations
- Mail Staging
- Equipment Staging
- Operation Setup – Obtaining rolling stock for dispatch, positioning rolling stock in the operation, placarding rolling stock
- Mail Supply – retrieving mail from staging areas and bringing mail into the operation
- Mail Sortation, Bundle or Single Piece
- Staging of Mail for Dispatch
- Operation Dispatch – Dock Operations

For some of these activities, the time consumed will vary with processed volume (sortation, mail supply), while others are largely independent of processed volume (Operation Setup and Dispatch). Hence, the Postal Service uses the In-Office Cost System (IOCS) to identify the range of activities within each MODS operation. Without measurement of time consumed by activities within the operation, the causes of inferior productivities/efficiency cannot be identified and addressed. By having measures of labor time consumed by each activity, postal management could distinguish between operational productivity changes that require intervention, such as low casing rates, and events, like decreases in processed volume or decreases in density by container, that are beyond the Postal Service's control.

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

The ideal data system for the Low Productivity on Automated Equipment pinch point would have the general characteristics described above at pages 28-29.

3. Pinch Point Three – Manual Processing

By definition, there is no discernible or reliable method for tracking mail that flows to manual processing. Some flats must be processed manually because they lack legible Intelligent Mail barcodes (IMbs), Flats ID Coding System (FICS) labels, or addresses sufficiently legible to be read by existing systems that can apply such barcodes. Manual processing is also required if flats are not machinable.[24] Existing tracking systems rely on scans of these barcodes on automated equipment to track mailpieces through the Postal Service network.

The Postal Service's service performance measurement system does not isolate flats processed manually; instead, service performance scores for flats that fall into the manual processing mail stream are incorporated into the overall service performance score for the specific class of mail, shape, and depth of sort. As discussed elsewhere in this report, the systems that measure service performance include Mail Handling Tracking System (MHTS) and IMb Service Performance Diagnostics System (SPD), among others.

- ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.***

Time and Attendance Collection System (TACS)

Manual Processing workhours are measured by the Time and Attendance Collection System (TACS), which was described above at page 48 in the Low Productivity pinch point discussion.

[24] Manual processing is and likely will continue to be the most efficient processing mode for low volume 5-digit ZIP Code areas at sites with automated equipment and the only processing mode at small rural facilities without automated equipment. Hence, coverage factors would likely never hit 100 percent,

In-Office Cost System (IOCS)

While TACS provides the total hours worked within operations, IOCS provides estimates of the proportions of time spent handling mail products within all mail processing cost pools (including manual flat distribution).[25] However, it does not identify the reason why a specific product is being handled within that cost pool. IOCS cannot determine why the flat is being processed manually; whether or not there was an equipment failure; or whether or not the mail was entered before the Critical Entry Time. Consequently, there is no visibility into the root cause of why the piece is processed manually. Furthermore, IOCS is designed to be a national sampling system that covers all operations, not just the manual flats operation. Providing timely, statistically accurate data to local operations would require a significant increase in sample size. In sum, IOCS data are of limited usefulness for improving operations at the local level.

Web End of Run (WebEOR) and WebMODS

The Web End of Run (WebEOR) system aggregates data on the quantity of mail processed on automated equipment at postal processing and distribution facilities. WebEOR data also are used to approximate manual flat workload (e.g., Total Pieces Handled or TPH) in WebMODS. Previously, each fiscal year, the Postal Service performed a single week-long survey of mail worked in the manual units, and determined the ratios of manual piece handlings from the survey to corresponding automated workloads for each shape of mail. These national ratios can be used to approximate the manual TPH processed at each facility on a daily basis in WebMODS. The Postal Service estimates manual

[25] The system is documented in detail in USPS-FY15-37.

sorting productivities at plants by marrying TACS workhour data for manual operations, which also flow to WebMODS, to the corresponding manual TPH.

Pertaining to manual incoming secondary sorting at the delivery unit, eFLASH provides estimates of manual incoming secondary distribution volumes. These would be based on EOR counts generated at the upstream plant if available, otherwise manual workloads are approximated by quantifying the linear measurement of mail that is worked and converting the measurements to pieces using standard conversion factors. However, reliable measures of workhours at delivery units associated specifically with manual flat distribution are not currently available, so reliable and granular manual flats productivity estimates for those offices cannot be derived from operating data.

- ***Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.***

Manual Processing Service Performance Impact

There is no discernible or reliable way for existing data systems to track mail that flows to manual processing. Existing data systems for service performance measurement rely on scans of Full-Service barcodes on automated equipment to track mailpieces through the Postal Service network. Hence, due to lack of visibility in manual processing; the Postal Service cannot measure service in manual operations currently. The only visibility event that might be available for pieces sorted in manual operations appears to be when the IMb on a sampled flat is read by a handheld scanner during the scanning process as

part of the proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1.

Processing of Periodicals/Newspapers in manual bullpens presents a visibility issue for the Postal Service. In an effort to bridge this gap, the Postal Service is currently performing a proof of concept for tracking newspapers which go through the manual mail flow. Based on initial assessments, postal management has determined that, in the near term, the use of the IMDAS scanners in bullpens in conjunction with existing Surface Visibility (SV) container tracking could sufficiently enhance Periodicals visibility. A Proof of Concept is currently being conducted in the field to collect data in order to measure cycle time metrics and improve mailer visibility. Data collection continues to be enhanced as we learn more from the ongoing proof of concept. The outcome of the test will determine if this technology solution will be implemented nationwide. Going forward, the Mail and Package Visibility Team will continue to explore the IMDAS scanners as a short-term solution and explore SV Mobile for a long-term fix.

Manual Processing Service Cost Impact

The cost avoidance mailflow models already incorporate estimates of mail in manual operations based upon coverage factors, realization factors, accept rates and reject rates. The costs associated with the manual processing of flats are part of the mailflow models and would be encompassed in the CIR.1.Attach.2. PER_OC_pinch.xlsx workpaper, as well. Should additional operational data become available that would indicate that the factors identified above as being causes of manual processing are over- or understated,

adjustments could be made to the model and the resulting cost impact discerned. As noted above, however, obtaining reliable measures of the volumes and sources of flats being worked in manual operations, for either development of productivities or for proper mapping of the mail in the mailflow models, remains a challenge.

- ***Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.***

This section describes potential opportunities to increase visibility into manual sorting, but as discussed below, these opportunities are very limited. Identifying when manual sorting occurred is difficult because of the lack of visibility in the manual sorting processes. Using the data that are currently available in the service performance measurement system, manual sorting activities may be inferred when certain expected scan events are not observed. The Postal Service would first need to define the expected mailflow path for each type of flat, based on the mail class, service standard, sortation level, entry point and day of entry, and destination. Then, the expected scans could be compared to the actual scans. For example, if there were no automation scans for pieces within a non-carrier route presort bundle prior to delivery, it would be reasonable to assume that the pieces were manually sorted. If the IMb on a sampled flat were read by a handheld scanner during the scanning process as part of the proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1, the absence of expected intermediate scans on automation equipment may imply that the piece was handled in manual operations rather than following the expected automation path. If the measured

piece failed in service performance, root cause analysis performed by the service performance measurement system may attribute manual sorting as the likely root cause for the failure. By performing such analysis on the measured pieces, the Postal Service may be able to estimate the overall impact of manual sorting on service performance for the flats products. However, without a delivery scan for manual pieces, the Postal Service would not be able to track whether manually processed flats are delivered late more frequently than pieces sorted on automation.

In addition, pertaining to cost, the lack of universal Full Service IMb adoption negatively impacts visibility and inhibits potentially greater insight into cost incurrence. Universal Full Service adoption could, in theory, provide additional, though imperfect, visibility through electronic documentation and nesting relationships to better estimate costs related to manual sorting and cycle times for product movement through the operation, but the informational requirements are enormous and the potential improvements limited. Given the impracticality of scanning each piece in manual operations, establishing the existence of pieces in the manual operation would need to be determined residually by assumption. As with service performance, IMb scans are valuable if the mailflow paths for each delivery point are known. Defining the intended mailflow for each delivery point would allow comparison of the actual scans with the intended scans for each piece. When actual scans do not include the intended scans, it necessitates assumption of manual processing for the piece. The completeness of the IMb derived information for manual operations would be limited. The process would not distinguish between pieces worked manually and

pieces damaged. Nor would the process determine definitively if or when a piece was worked manually.

The absence of expected automation scans on pieces may imply that manual sorting occurred, but other issues could exist, making it impossible to absolutely ascertain the root cause. For example, occasionally automated equipment may not transmit the scan data correctly, even though automated processing occurred as expected. Data may not be transmitted at all, or may be rendered useless by an integrity issue; for instance, the data may be incomplete. Or an IMb on a mailpiece may not match the mailer's electronic documentation (eDoc); the absence of scan information may be due to the fact that a flat with the IMb matching the eDoc did not exist in the Postal Service network. For these reasons, relying on the absence of scan data to estimate the volume processed manually may not provide more accurate estimates of volumes than current methods.

As previously stated, a significant challenge with manual sorting is the lack of visibility events; no data are available that indicate precisely when the manual sorting occurred and the Postal Service does not know the exact volume of flats sorted manually. To gain more insight into manual sorting activities, additional visibility events are needed. However, such a task would adversely impact both cost and service as extra labor and workhours would be needed; by adding visibility events, clerks would have to scan mailpieces diverted into manual processing, in addition to sorting the mail.

Absent an ideal system which would provide visibility into the pieces undergoing manual sortation, in the interim, Network Operations will resume the

survey of manual operations, with the intention of increasing the frequency of the one-week survey to twice per year in order to try to gain more understanding of manual volumes faster.

In the future, an approach leveraging Radio Frequency Identification (RFID) technologies may allow the Postal Service to identify mail moving into manual sorting areas within plants or delivery units. Similar to the IMb, RFID is a tracking method that automatically identifies and collects data about mailpieces. However, unlike the IMb, the RFID tag does not have to be within the line of sight of the reader because the RFID reader uses electromagnet fields to collect data on the mailpiece with the RFID tag. RFID technologies have been in existence for decades, but until recently, due to the costs involved in leveraging it, were used primarily by other industries, including retail stores, for tracking the location of large items. In recent years, technological advances have lowered the cost substantially, with further advances expected as adoption of the technology grows. While wide-scale RFID usage by the mailing industry remains economically infeasible today, it is possible to imagine that in the not too distant future, technological advances will drive down the cost of RFID technologies such that it may be practicable for the mailing industry to adopt the use of RFID in the entire mail production process. With the advent of wide-scale usage by the mailing industry, an RFID tag would be placed on each piece of mail, each tray, and each container. Under such an approach, the Postal Service could use the RFID data to track mail within the plant, including into and out of manual sorting areas, for example, resulting in considerably greater insight into the location of mail at all times through the mail stream. With such data, information about the

volume of manually sorted mail, broken down by shape, would be available. However, RFID data on their own do not provide information about the underlying reason for the manual sortation; additional data capture processes would be needed.

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

As an initial matter, and as noted above, the Postal Services submits that its current data systems are sufficient to enable substantial delivery service improvement. If the Postal Service were to design a hypothetical "ideal data system" to capture information about flats costs and service performance, from the ground up, it would seek to capture information about every mail piece processed through manual operations, using RFID or similar technology. Such a system for the Manual Operations pinch point would have the general characteristics described above at pages 28-29. It would allow management to define desired operational flows for all mailed items through every facility configuration, detect deviations from the desired flow and facilitate the immediate rerouting of the errant piece and/or container, identify the cause of the piece or container being on the incorrect path, and measure time expended on each activity within an operation, including the cost of the rework required for the errant pieces/containers. In order for this hypothetical system to effectively improve costs and service, it would need to be usable for identifying and then preventing the root causes of the failures.

In an ideal data system, every operation would be capable of detecting every mail piece processed. Detection could be in the form of direct piece observation such as a barcode scan of individual pieces, or by nested detection, the detection of an item, such as a bundle or tub, or container, such as a wiretainer, hamper, APC or pallet, containing individual pieces. In addition to detection, the ideal system should be able to inform on the disposition of each piece handled in the operation, that is, whether the piece was successfully handled or not and where (meaning what future operation or container) the piece was sent. The ideal system would be able to inform management when pieces are diverting from the desired/intended flow and should give management insights into the cause of the failure so the process could be corrected.

Equally important as ensuring the proper flow of mail would be informing management of the efficiency of each operation. Apart from indicating the costs by operation, an ideal system would inform management on the component activities within each operation. Currently, through the Management Operation Data System (MODS), the Postal Service can quantify the labor time consumed in each operation, but this system does not inform management of the time consumed by activities within operations. Each operation is composed of a set of activities within the operation. The manual operation could, for example, be broken down into:

- Operation Setup – Obtaining rolling stock for dispatch, positioning rolling stock in the operation, placarding rolling stock
- Mail Supply – retrieving mail from staging areas and bringing mail into the operation
- Sortation

- Operation breakdown/dispatch.

For some of these activities, the time consumed will vary with processed volume (sortation, mail supply), while others are largely independent of processed volume (Operation Setup and Dispatch). Hence, the Postal Service uses the In-Office Cost System (IOCS) to identify the range of activities within each MODS operation. Without measurement of time consumed by activities within the operation, the causes of inferior productivities/efficiency cannot be identified and addressed. By having measures of labor time consumed by each activity, postal management could distinguish between operational productivity changes that require intervention, such as low casing rates, and events, like decreases in processed volume or decreases in density by container, that are beyond the Postal Service's control.

The Postal Service currently uses the above referenced data elements (workhours and volume) to estimate productivity rates. These rates are used operationally as a surrogate for actual cost numbers. By focusing on improving productivity rates, management is seeking to decrease the cost of processing associated with manual handling. Because of the lack of visibility in manual processing, the Postal Service focuses on maintaining automation compatibility of the mail. This allows it to be processed in more productive, less costly operations, which also provide greater insight into service performance. At this time, this is the most efficient approach to contain costs and improve service.

4. Pinch Point Four – Allied Operations Cost and Service Issues

Allied operations consist of platform operations, the movement of mail and Mail Transport Equipment (MTE) between operations, the opening, preparation and separation of mail prior to manual or machine distribution at Processing and Distribution Facilities/Centers (P&DF/P&DC), Network Distribution Centers (NDCs), and Destination Delivery Units (DDUs). The key activities that make up allied operations are described below.

- **Platform**: Includes the arrival, unloading, acceptance, movement, and staging of inbound mail and MTE in dock areas. It also includes the movement, staging, and loading of mail and MTE for outbound transportation.

- **Transport**: Involves the internal movement of mail containers throughout facilities, using Powered Industrial Vehicles (PIV) or through manual means, to support distribution operations and dispatch schedules. The transportation activities may be between operations or to and from the dock.

- **Opening Unit/Mail Preparation**: Consists of separating, opening, and preparing the mail for piece processing, including removing tray lids, tray sleeves, straps, and shrink wrap to prepare mailings for induction into sorting operations. Mail preparation often requires additional facing or orientation of the mail to ensure readability.

- **Dispatch**: Includes the essential tasks necessary to identify, tag, separate, and direct processed mail to its final destination. Dispatch activities include sweeping (the removal of finalized mail from the sorting equipment), consolidation of mails, and application of placards or dispatch and routing (D&R) tags for transportation assignment.

o ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.***

The Postal Service's visibility into the flats-specific cost and service impacts of this pinch point is limited by the nature of allied work, as is discussed

further below. As a preliminary matter, however, it is important to note that one must be cautious in drawing conclusions about the productivity of allied operations on the basis of changes in the ratio of allied costs to productive distribution.

Time and Attendance Collection System (TACS)

Allied operations workhours are measured by the Time and Attendance Collection System (TACS), which is discussed above in the Low Productivity pinch point section at page 48.

In-Office Cost System (IOCS)

While TACS provides the total hours worked within operations, IOCS provides estimates of the proportions of time spent in work activities, including handling mail products, within all mail processing cost pools (including allied labor operations). IOCS generally can identify mail by CRA product and shape, but cannot generally identify costs for rate categories within products, largely because the actual rate categories are not directly observable in all cases. For sampled activities involving handling containers of mail with mixed products, IOCS does not determine the specific products being handled, but rather identifies the types of mail in the containers — e.g., loose mail of various shapes, trays, bundles, sacks. IOCS is a national sampling system that covers all clerk and mail handler labor at plants and post offices, and is designed to produce statistically valid results at the national level. The IOCS sample design includes all plants (e.g., P&DCs, P&DFs, and NDCs), but sample sizes at the facility level are limited. IOCS samples a relatively small fraction of post offices, stations, and branches. Providing timely, statistically accurate data on facility-specific operations would require a

substantial increase in sample size and hence data collection costs. In sum, IOCS data are of limited usefulness for reporting on facility-specific operations.

While TACS provides the total hours worked within operations, IOCS provides estimates of the proportions of time spent in work activities, including handling mail products, within all mail processing cost pools (including allied labor operations). IOCS generally can identify mail by CRA product and shape, but cannot generally identify costs for rate categories within products, largely because the actual rate categories are not directly observable in all cases. For sampled activities involving handling containers of mail with mixed products, IOCS does not determine the specific products being handled, but rather identifies the types of mail in the containers — e.g., loose mail of various shapes, trays, bundles, sacks. IOCS is a national sampling system that covers all clerk and mail handler labor at plants and post offices, and is designed to produce statistically valid results at the national level. The IOCS sample includes most plants (e.g., P&DCs, P&DFs, and NDCs), but sample sizes at the facility level may be limited. IOCS samples a relatively small fraction of post offices, stations, and branches. Providing timely, statistically accurate data on facility-specific operations would require a substantial increase in sample size and hence data collection costs. In sum, IOCS data are of limited usefulness for reporting on facility-specific operations.

Web End of Run (WebEOR) and WebMODS

The Web End of Run (WebEOR) system aggregates data on the quantity of mail processed on automated equipment at postal processing and distribution facilities. WebEOR data also are used to approximate manual workloads and allied work credit (e.g., Total Pieces Handled or TPH) in WebMODS. Reliable measures of allied workhours at delivery units associated specifically with flat

distribution and handling are not currently available, so reliable and granular allied labor productivity estimates for those offices cannot be derived from operating data.

The Commission acknowledges the lack of granular cost information available for this pinch point.[26] As the Commission notes, although the Postal Service receives allied work-hour data from the Management Operating Data System (MODS), there is no distribution of allied workhours between letters, flats, and parcels.[27] In addition to not having flats-specific allied workhours, there is little data on the volume of mail being handled in allied operations. Accordingly, productivities cannot be calculated for all allied operations.

The lack of data on allied workhours associated with flats is due to the nature of allied work. At plants and NDCs, allied operations involve the handling of all types of mail. With the exception of identified mailer drop shipments, most postal transportation carries multiple products and classes. It is the same with related platform operations, specifically the unloading and loading of trucks, and the transportation of mail to and from the platform. Mail preparation, opening units, and pouching may be focused on a specific type, or even class, of mail, but MODS generally does not separately identify such operations so as to track those hours separately.

Similarly, the transport of mail and containers throughout facilities is not defined by class or mail type, and dispatch tasks are normally not associated with a particular mail type or class. Indeed, dispatch and bullpen operations

[26] FY15 ACD at 173-75.

[27] *Id*. at 175.

consolidate various classes and/or shapes of mail into containers for particular destinations in order to maximize transportation utilization. The consolidation of mail types and classes makes the association of these allied workhours to specific products challenging.

Finally, there are no work-hour data for allied operations at the delivery unit. At delivery units, the same personnel often work on both allied and direct operations, such that a reliable split between workhours for allied operations and distribution operations does not exist. Thus, MODS and/or the TACS provide even less information about allied work at the delivery units than they do for allied work at plants and NDCs.

Ultimately, even if the Postal Service could obtain allied operations work-hour data for flats, productivity measures would still not be available for allied operations, because, as noted above, the Postal Service does not have activity-specific volume data for allied operations.[28]

With respect to service performance, the Postal Service primarily leverages the Work in Process metric (WIP) to detect possible delays at various stages in mail processing, which can help identify issues that may have an adverse impact on service. As discussed above, WIP is a cycle time report made available through the Service Performance Diagnostics (SPD) tool, which leverages data from Business Intelligence Data Store (BIDS) and Seamless Acceptance and Service Performance System (SASP). SASP and BIDS are backend systems that are used for the purpose of service performance measurement. SASP takes mailing information from PostalOne!, actual entry

[28] FY15 ACD at 173. The only information that MODS contains regarding allied work load for plants is a work-credit for allied operations that is calculated based on volumes worked in distribution operations.

time data from the Facility Access and Shipment Tracking system (FAST), and scan data collected by automated mail processing equipment to perform service performance calculations. SASP then sends the aggregated data to BIDS. SPD uses the information from those systems to provide reports that help diagnose service issues.

One such aggregate provides information on the median hours between a container's actual entry time and the bundle scan. Another WIP metric shows the time elapsed from the container's actual entry time to the initial automation piece level scan. WIP reports provide data at the Area, District, and facility level by mail shape and destination entry discount, for a given period of time (e.g., the prior five days). While not directly indicative of the time used by particular activities within allied operations, these WIP metrics provide information indicating which facilities take longer between primary operations than others.

In addition to WIP metrics, the Bundle Visibility program provides some visibility into allied operations. As stated above, the Bundle Visibility program uses scan data collected from carrier route bundles at mail processing plants and delivery units. The Postal Service has been able to use Bundle Visibility information to track where carrier route bundles are actually located in the process, from acceptance to final processing at delivery units.

With proper Assign and Close scanning, the Postal Service can determine the container in which a given carrier route bundle is located. Before bundles are processed, Postal Service employees Assign scan the machine bin barcode, and the barcode on the container associated with that bin. All mail that is assigned to that particular bin is logically nested to that specific container. In other words, the

Bundle Visibility report uses scan data to show an electronic association between the machine bin and the container. Bundle Visibility reports can show when each bundle is processed, and when each bundle leaves the plant for transportation to the delivery unit. Containers are scanned again when they arrive at the delivery unit and when distribution of the bundles is finished.

Even with the current information described above, however, the visibility that the Postal Service has into its allied operations is limited. As an initial matter, Bundle Visibility relies on a very high level performance of manual scanning to establish the necessary nesting relationships. The Postal Service is committed to improving scan compliance at each facility to as close to 100 percent as possible in order to obtain the full benefit of this initiative; however, the visibility that can be gained from any data system is limited to the extent it relies on human intervention, as opposed to automation.

Moreover, mailers are not required to submit Full Service mailings, and even for mailings that are Full Service, the Postal Service does not necessarily have the information required to create a nesting relationship between pieces and actual bundles, and between bundles and actual containers. Sometimes, large mailers tender flats with electronic documentation that provides only logical relationships between mailpieces and containers, meaning that a piece of mail could be located within one of several similar containers prepared by the mailer, with the exact container that held each piece being unknown. When that is the situation, the Postal Service loses the ability to track mailpieces as soon as the containers are handled separately from one another, for example, as they are assigned to different transportation trips.

In even the most ideal situation when mailers provide sufficient data to support nesting, the exact container in which a piece of mail is located is often not identifiable beyond the point when mailer-prepared containers are broken open for processing at an origin plant. In such a situation, even though information about the transportation of Postal Service-prepared containers is available, the Postal Service does not know exactly how much or which mail is in those containers. Bundle Visibility is addressing some of the challenge for bundles moving from the processing plant to the delivery unit. However, for flats that are not bundled and flats moving between origin and destination facilities, information about what mail is located in the containers is often not known.

Finally, while the Postal Service may be able to use the information described above to determine where in the allied process a delay occurred, there are various reasons why delay may occur that are not made visible by these data alone. For example, current data do not identify the root cause of why a container does not meet cycle time targets.

- ***Provide a detailed analysis of the cost to produce and aggregate such data in a way capable of quantifying the cost and service impacts of each pinch point at the most granular level practicable. The cost analysis should include all development costs, as well as ongoing data maintenance and analysis costs, and include specific estimates of workhours required and the cost of those workhours.***

Allied Operations Service Performance Issues

Currently, the Postal Service does not have a metric that indicates service impact due to issues in Allied operations. The Postal Service's visibility into the flats-specific service impacts of this pinch point is limited by the nature of allied work.

Allied Operations Cost Issues

As the Postal Service has described in both the Flats Response and the technical conference, because of the wide range of activities in facilities that are not standardized, and the lack of visibility into the mail being handled in such operations, the Allied Operations pinch point presents a particular challenge. The Postal Service does note that it is probably in allied operations that the decline in mail volume and the resulting decline in mail density in each facility most directly impacts unit costs. The cost of container movements involving few or many pieces per container are likely to be the same, but dividing the container movement cost by fewer pieces per container results in increasing unit costs.

In the CIR.1.Attach.2. PER_OC_pinch.xlsx workpaper, as in the USPS-FY15-11 PER OC.xlsx file, in tab “Model Volumes” information from mailer-provided data on the counts of bundles by bundle and container presort levels, and the number of pieces by rate category and the pieces per bundle are summarized. In column T at cells T24 through T34, calculations of the number of pieces per bundle are developed. The pieces per bundle will necessarily impact the bundle handling costs per piece. This information can be updated on a quarterly basis. An Excel spreadsheet named CIR.1.Attach.3.Select Statistics.xlsx, attached to this filing, provides data on the number of pieces per container and per bundle, by presort level, for mailer-prepared containers and bundles. This information is not sufficient, however, to provide visibility into postal-prepared containers.

- ***Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.***

As discussed above, due to the nature of allied operations activities, the data provide limited opportunity to quantify the cost and service impacts of this pinch point, because there are too few visibility events in the current data associated with allied operations. One potential opportunity to expand visibility of allied operations is through additional WIP metrics for Full Service IMb mail. With additional visibility points, additional cycle times can be evaluated. Currently, the Bundle Visibility initiative is aimed at increasing visibility points for carrier route bundles at mail processing plants and delivery units. Using the extra visibility data, additional WIP cycle time metrics between bundle handling activities potentially could be created.

There may be potential, through the implementation of additional container and tray scans, to track origin-processed mailpieces as they move through the transportation network. Currently, the exact container in which a piece of mail is located is often not identifiable beyond the point when mailer-prepared mixed containers are broken open for processing, and the constituent trays are separated, at an origin plant. In such a situation, even though information about the transportation of Postal Service-prepared containers is available, the Postal Service does not know exactly how much or which mail is in those containers. Additional scanning during this period could enable the nesting of mailpieces to trays, and trays to containers, allowing the Postal Service to track mailpieces during this period. Before pursuing such a proposal, however, the Postal Service would need to weigh the potential benefits that such visibility could afford against the added time and cost that the performance of supplementary manual scanning would impose.

Another potential method of identifying delays related to allied operations using currently available data is to measure, for a given piece of mail, the time that elapses between those processing events that are visible, and identify instances in which actual time elapsed exceeds the expected time. For example, the measurement of time elapsed between the bundle scan and the initial FSS scan for a measured mailpiece could be compared with an operational objective measured in terms of hours. If the actual time elapsed exceeds the objective, the piece could be identified as having an issue related to allied operations. The Postal Service would, in theory, have an opportunity to conduct a root cause analysis for measured pieces that are ultimately not delivered on time, and which were flagged under this process. The assignment of root cause at the mailpiece-level would allow the Postal Service to quantify the impact on service performance at detailed levels, such as by facility, day of week, and date.

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

If the Postal Service were to design a hypothetical "ideal data system" to capture information about flats costs and service performance, from the ground up, it would seek to capture information about every mail piece, bundle, pallet or container being handled through operations. Such a system for the Allied Operations pinch point would have the general characteristics described above at pages 28-29. It would allow management to define desired operational flows for all mailed items through every facility configuration, detect deviations from the desired flow and facilitate the immediate rerouting of the errant piece and/or container, identify the cause of the piece or container being on the incorrect path,

and measure time expended on each activity within an operation, including the cost of each handling required for the errant pieces/containers. In order for this hypothetical system to effectively improve costs and service, it would need to be usable for identifying and then preventing the root causes of the failures.

The efforts involved in dissecting the allied labor functions in mail processing alone would require a significant change in the way mail, mail containers and MTE are currently handled during processing. The infrastructure of our current scanning procedures would need to be expanded to include product type and shape whenever possible. Improving the visibility into the allied activities would require manual scanning at each touch point, staging area and mail preparation location throughout the processing mail stream. In order to support the detailed flats information, placards/mail identifiers would need to be created to provide added visibility to all containers and work locations associating that handling with a mail type and class. Every operational location in a building would need to be set up to allow allied activities to be tracked and associated with the applicable mail handling type. In addition to identifying all mail in the system, the employees' activities would need to be associated to the location and mail type.

Additional visibility into the staging and wait time would provide insight into service impacts. However, the root cause of the wait time would have to be quantified in the system. There must be a distinction made between the time mail waits to be processed due to capacity, versus waiting time for sort plan configuration or run order, the latter being a necessary requirement in a "batch processing" environment.

Finally, an information system to quantify the service and cost implications of the enhanced scan data would need to be developed. The system would need to be robust enough to drill down the costing and service impacts (root cause) to the work location and product level.

The Postal Service uses the WIP and cycle times to manage the flow of mail through the allied processes. By focusing on WIP and targeting specific timeframes for specific product flows, management has been successful in moving the mail more expeditiously through the facilities and operations. A decrease in the WIP and cycle time has a direct bearing on improvements to service performance for these products.

5. Pinch Point Five – Transportation Operations

For purposes of this discussion, transportation operations are those involved in the surface movement of mail from its origin processing facility to its destination processing facility, and from that facility to its delivery unit. Flats travel over the Postal Service's surface network loaded into trailers hauled by postal and contract vehicles. Transportation-related factors that can adversely affect costs and service performance include missed transportation (instances in which mail misses scheduled transportation); mail on incorrect transportation; constraints on truck capacity; and truck mechanical failures. These factors affect service performance and can also affect costs. Other factors that would affect service performance include the capacity utilization of any particular leg of transportation and the fullness of containers occupying floor space in a trailer, both of which would be adversely affected as volumes decline.

- ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, and any other systems not identified herein.***

Information Generated by Current Data Systems

As indicated in its July 26th Flats Response, the Postal Service's primary source for recording surface transportation performance data is Surface Visibility.[29] SV relies on scans of containers and trailers. Each container traveling through the network should have a Mail Transport Equipment Labeler (MTEL) placard attached. The MTEL placard is unique and defines the product

[29] The Transportation Cost System (TRACS) measures cost drivers by product (at CRA level) for air and surface transportation modes, and is documented in detail in USPS-FY15-36. Similarly to IOCS and CCS, it is not designed to provide the reason for a particular product being transported on a particular trip. Furthermore, TRACS is designed to produce national level estimates, not those at a local or a facility level.

type of mail in a container (not shape specific) as well as its intended surface routing. The trailer barcode that is scanned is unique to that trailer and is assigned to the trip carrying the mail. Tying the two pieces of data together as scanning occurs provides visibility into our network. Using Surface Visibility's scanning data; numerous reports are generated to help identify areas of opportunity that affect both service and costs. Listed below are some of the main reports used from the data collected.

On-time departure percentage: By comparing the scheduled vs. actual departure times of the trucks, the Postal Service is able to determine the percentage of trucks that depart on-time.

On-time arrival percentage: By comparing the scheduled vs. actual arrival times of the trucks, the Postal Service is able to determine the percentage of trucks that arrive on-time.

Load Percentage: Using the container scan data, the Postal Service is able to determine the percent utilization or percentage of vehicle capacity used for each trip (but presently is unable to tell if a container is less than full).

Late Container scans: Using the container scans from the MTEL placard allows the Postal Service to determine if a container was late being loaded on a truck.

Missent Containers: Using the container scans from the MTEL placard, the Postal Service is able to determine if a container was put on the wrong transportation.

o ***Identify relevant information, in addition to current data, that could be developed by adjusting or expanding existing data systems and provide a detailed analysis of the cost involved for any adjustments or expansions needed to generate the information.***

The reports listed above are focused on the visibility of trailers and containers. The next step in improving visibility is to obtain data about contents of the containers. The Postal Service has initiated scanning and computing nesting of bundles coming from its sorting equipment. By tying the bundle scans

coming from the machine to the specific containers to which individual bundles are assigned, the Postal Service could track bundles as they leave processing facilities on their way to the delivery units. Delivery unit clerks scan and distribute the bundles to carriers before they depart for street delivery. This will enhance the Postal Service's visibility of bundle disposition.

The next evolutionary step beyond scanning of trailers and containers would be to obtain nesting data for all mailpieces, not just bundles. The level of effort to collect the data for nesting is not equitable across products and mail shapes however. Postal sorting systems are not set up to track each mail piece into a flat tray. In addition, not all flat mail pieces bear unique barcodes (IMbs) that would allow individual pieces to be tracked. Even though individual piece nesting is technically challenging, nesting of flat trays into containers is possible and, if deemed economically feasible, could be pursued.

With nesting data, the level of diagnostics the Postal Service would be able to perform would expand beyond containers and trucks and would allow a finer level of service and cost diagnostics down to the product level.

The Postal Service currently does not have metrics available to measure service impacts related to failures in the transportation pinch point, but metrics can be developed by leveraging nesting data from the current Bundle Visibility process which is still being refined by the Postal Service. The new metrics could measure cycle times as the mail moves through the postal transportation network.

Pending further development of this Bundle Visibility data source, it currently is anticipated that such national aggregate data could be reported on a

quarterly basis beginning with data generated during FY17 Q2 a reasonable time after the conclusion of that quarter. The above metrics are all predicated upon accurate nesting both by Postal Service and the mailers and will only be available for Full-Service IMb mailings.

The Postal Service currently leverages Surface Visibility data to drive service performance. In addition to the new metrics discussed above that are being developed, the Postal Service also expects to be able to report Trips on Time and SV Scan Rate metrics.

The Surface Visibility (SV) application has been enhanced to expand scanning and visibility to the Postal Vehicle Service (PVS) transportation function and has been expanded to over 350 SV locations. This new capability will allow PVS trips to be tracked and enable scanning at non-plant locations, such as Detached Mail Units, freight warehouses and mailer facilities. This will effectively increase the visibility reach of SV from postal plants to the facilities serviced by PVS transportation. The added information will allow the Postal Service to track late trips and take action to improve service performance. It also will provide enhanced data to support planning, management, and optimization of the surface transportation network by increasing trailer utilization and eliminating unnecessary trips. Moreover, the collection of additional raw data at non-SV sites will increase data points to make smart decisions and improve operational efficiencies and reporting.

Enterprise Transportation Analytics (ETA)

This application brings new functionality to the management of the PVS fleet. Geographic location data generated by the handheld scanning device can

be leveraged to produce data needed to monitor vehicles as they navigate between Postal Service facilities. Adherence to planned schedules is compared to actual performance and identifies where deviation from standards are occurring. A dashboard shows current vehicle performance and highlights where current delays exist. This information will help in identifying underlying reasons for late mail arrivals and the corrective actions needed to achieve the desired service performance.

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

The ideal data system for the Transportation pinch point would have the general characteristics described above at pages 28-29.

6. Pinch Point Six – Last Mile/Delivery

The Commission identifies Last Mile/Delivery operations as the final pinch point. Last Mile refers to the portion of time in transit for a mailpiece from its final automated/mechanized mail processing plant sortation or delivery unit bundle handling to its delivery by postal personnel. In light of the Commission's discussion in the ACD,[30] it seems prudent to clarify that while the Postal Service's current service performance measurement system does not provide reliable estimates of service in FSS zones versus non-FSS zones, as described later in this section, the proposed internal Service Performance Measurement (SPM) system now under review in Docket No. PI2015-1 is capable of providing such data.

- ***Identify all information related to each pinch point operation that is generated by current data systems. Include all relevant existing data systems, such as IMb Service Performance Diagnostics System (SPD), Seamless Acceptance and Service Performance (SASP), Informed Visibility (IV), the Intelligent Mail Accuracy and Performance System (IMAPS), and any other systems not identified herein.***

Information Generated by Current Data Systems

In-Office Cost System (IOCS) and Carrier Cost System (CCS)

The In-Office Cost System (IOCS) measures labor costs for products, including the cost for carrier in-office activities (Cost Segment 6).[31] However, IOCS is not designed to provide insight into the reason why an employee is handling the product. If a flat that should have been sequenced by FSS is being manually cased by a carrier, IOCS cannot determine if the flat is being cased because it was missent, missorted,

[30] ACD at 179 ("Specifically the Postal Service did not clear identify if it routinely tracks and quantifies service performance for FSS zones compared to non-FSS zones.").

[31] The system is documented in detail in USPS-FY15-37.

missequenced, or misdelivered; whether there was a sortation equipment failure; or whether the mail was entered after the Critical Entry Time.

The Carrier Cost System (CCS) measures the volume of products delivered by carriers.[32] For city carriers, CCS can identify whether a flat was cased by the carrier as opposed to processed by FSS, but similarly to IOCS, it is not capable of providing visibility into the reason for that result. Both IOCS and CCS are designed to be national, not local, sampling systems.

Customer Service Daily Reporting System (CSDRS)

The Customer Service Daily Reporting System (CSDRS) is a web-based reporting program encompassing all Postal Service delivery facilities: street delivery units (both city, rural, and contract routes), and non-street delivery units with Post Office Box delivery. The system allows Post Offices, stations, and branches to report curtailed (Standard Mail only)[33] and delayed volumes of mail by class and type (by piece) as information and for potential action or intervention by Postmasters or District, Area, or Headquarters personnel. Data are available at the 5-digit ZIP Code level all the way to a national aggregate, and various organizational levels in between. Data can also be aggregated over specific time frames. The specific items tracked by CSDRS are demonstrated in Figure 1 below, which separately identifies mail volumes delayed in the Post Office by carriers (Delv) and mail volumes delayed in the Post Office by clerks

[32] The City Carrier Cost System (CCCS) is documented in USPS-FY15-34, while the Rural Carrier Cost System (RCCS) is documented in USPS-FY15-35.

[33] Standard Mail that arrives at the delivery unit on a delivery day before the date implied by the applicable service standard may be "curtailed," or held back from delivery, until its expected delivery date. A curtailed Standard Mail mailpiece becomes "delayed" if it is not delivered on its expected delivery date.

(C/S). Delayed volume is defined as mail scheduled for delivery on a given date but not sorted by clerks and/or delivered by carriers on that date.

Figure 1: Example CSDRS Executive Summary Report

Executive Summary Report

Start Date: 27-Apr-2016 **Area:** Capital Metro **MPOO Group:** Dennis Voorhees
End Date: 27-Apr-2016 **District:** NORTHERN VIRGINIA **ZIP Code:** 20111

Back to Route Status

Click highlighted column heading to sort by that column.

Zip Code	Delayed																	
	Pref Ltrs		Pref Flts		Std Ltrs		Std Flts		Ele Mail		Pol Mail		Pkg Serv		Priority		Periodicals	
	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S	Delv	C/S
20111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Additional metrics captured by CSDRS that can have service impacts include: late departure and return of carriers, missent mail (sent to the wrong delivery unit by a mail processing plant), missorted mail (sorted to an incorrect route with the same destination service area), mail arriving late to the delivery unit, and mail from a processing plant for which carrier route sortation was expected but not applied. District level personnel perform random on-site "service reviews" to ensure local compliance with CSDRS reporting requirements and accuracy of reports.

Delivery Operations Information System (DOIS)

The Delivery Operations Information System (DOIS) is a program utilized exclusively at city delivery units. DOIS obtains FSS volumes by route directly from EOR reports. DOIS records sequenced volume by route (mail taken directly to street) as a proportion of possible residential deliveries. To count manual volume in delivery units, supervisors record the flat mail distributed to carriers manually via a linear volume count process.[34] Generally, counts are performed by measuring the amount of flats present at the carrier case in linear inches using various measurement devices such as adhesive

[34] The counting process is automated for other mail categories.

tape applied to various flat containers and carrier cases, or a yard stick. The actual count entered into DOIS is converted into pieces from the total inch count at a conversion of 9.5 pieces per inch. While DOIS tracks city carrier office hours in total, DOIS does not track city carrier cost or workhour data for flats. In fact, no Postal Service data system tracks city carrier flats workhours.

Hot Case Scan

Each delivery unit has a separate carrier route distribution Hot Case which is used by clerks to manually sort First-Class Mail letters and flats, and Periodicals for which delivery is expected on the day of Hot Case sortation. If offices have city delivery carriers, the "slot" on the case for each carrier route has a Managed Service Point barcode applied on the top of the shelf, over which the mail is placed.

When departing for street delivery, each city carrier is required to extract any mail from the Hot Case for their specific route and scan the Managed Service Point barcode with their hand held scanner. The carrier is expected to deliver these mailpieces on that day. City delivery carrier supervisors have access to reports that show the time of the Hot Case scan or signify whether scans were missed. The data from these scans are retained in DOIS.

Both city and rural carriers employ a similar system using a red "Hot Case Card" that is placed in the slot when the mail is removed, in lieu of a barcode scan for rural carriers, and performed in addition to the scan for city carriers. The Hot Case Card system requires a visual inspection of the Hot Case to ensure that all carriers have completed their required final pull of the case. In practice, most supervisors (of both city and rural carriers) find that a simple inspection of the case for any remaining mailpieces after carriers depart is a simpler and more efficient method of ensuring compliance.

Service Performance Measurement (SPM)

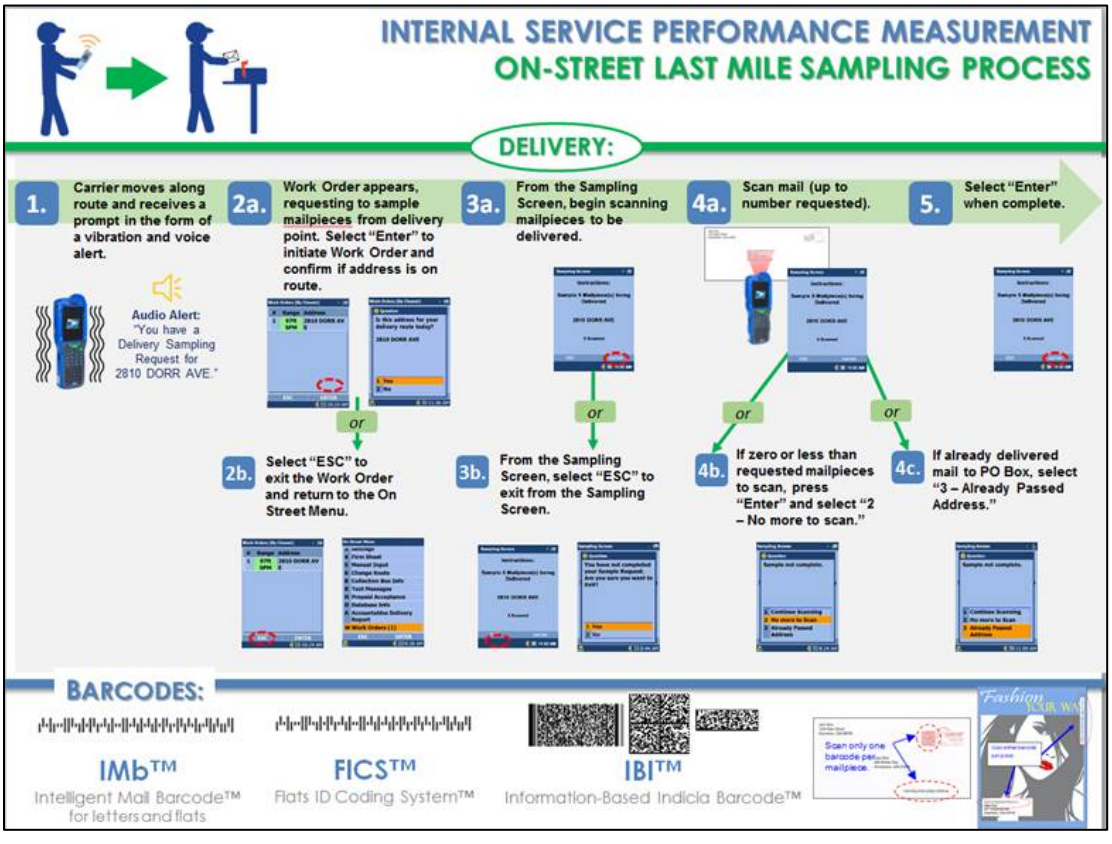
The proposed internal Service Performance Measurement (SPM) system currently under review in Docket No. PI2015-1 includes a web-based program that provides local managers near real-time intelligence on Last Mile delivery from the final processing of automated letters and flats at mail processing facilities to the actual delivery point. Testing of SPM rolled out nationwide in September of 2015. Under SPM, postal clerks and carriers scan mailpieces and data from those scans are used to measure service performance.[35] On each delivery day morning, the carrier scanner downloads a file that has the SPM orders for the carrier's workday. The work orders are the randomly selected addresses where mailpieces having a barcode will be scanned just prior to delivery. For delivery on city, rural, and highway contract routes, the sampling work orders are triggered on the scanning devices when Postal Service personnel cross a geo-fence indicating they are near the selected delivery point.

When data from delivery scanning is matched with the automated mail processing scans (or manual scans performed by Postal Service personnel for Bundle Visiblity in the case of Standard Mail, Periodicals and BPM flats within bundles), the Postal Service is able to identify delays between processing and delivery. If the delay makes a mailpiece that was on time at its final automated processing move into the late service performance category, the mailpiece is deemed a Last Mile failure. The internal service performance system allows for the identification of Last Mile delays and failures down to the mailpiece level, so that the Postal Service can identify problems at very

[35] Both Collections (First Mile) and Delivery (Last Mile) are measured.

detailed levels such as carrier and delivery unit, in addition to route types, mail types, weekday, FSS zone versus non-FSS zones, and more.

Figure 2: Overview of the Internal SPM On-Street Last Mile Sampling Process



Current Last Mile service performance impact reporting for Presort First-Class Mail flats, Periodicals, Standard Flats, and BPM flats is calculated by subtracting on-time scores for mail measured from start-the-clock to final automated processing from overall service performance scores for mail measured from start-the-clock through delivery. However, the Postal Service's ability to directly utilize its current service measurement system to examine Last Mile impact on service performance is limited by the system's design. That system relies on approximately 15,000 residential mail recipients across the country who are hired by an independent contractor to record and

report data regarding their receipt of mail in a manner that keeps their participation in the measurement system confidential and unknown to the Postal Service. Access to the addresses of these anonymous reporters by the Postal Service would help in the diagnosis of Last Mile service issues, but would compromise the integrity of the current measurement system.

The virtues of the current measurement system aside, there are features of the proposed internal SPM system that enable its use as a reliable source of Last Mile operational diagnostics. Among them is its inclusion of virtually all of the more than 150 million residential and business delivery addresses for measurement based on a random selection process. This dramatic expansion in delivery points from which data are collected provides broader and more granular geographical coverage and more robust data for evaluating Last Mile pinch points than 15,000 delivery addresses.

The Internal SPM plan was implemented in Quarter 2 of Fiscal Year 2016 and the Postal Service is now capturing daily samples on virtually all market dominant products across a nearly universal delivery address base. These data are providing insight on Last Mile service pinch points in mail processing and delivery. New visualization tools are being utilized by postal managers to access live mail sampling data to pinpoint systemic issues associated with Last Mile delivery. For example, if specific delivery units are identified as experiencing Last Mile issues, and those units are serviced by the same transportation, operations managers have the opportunity to review and adjust dispatch and transportation schedules to improve Last Mile performance. At an even more granular level, the Postal Service expects to utilize SPM data to gain insights on Last Mile impacts by process flow, product type, delivery unit,

transportation flow, and even down to the individual carrier and/or carrier unit level to address pinch points that have an impact on service.

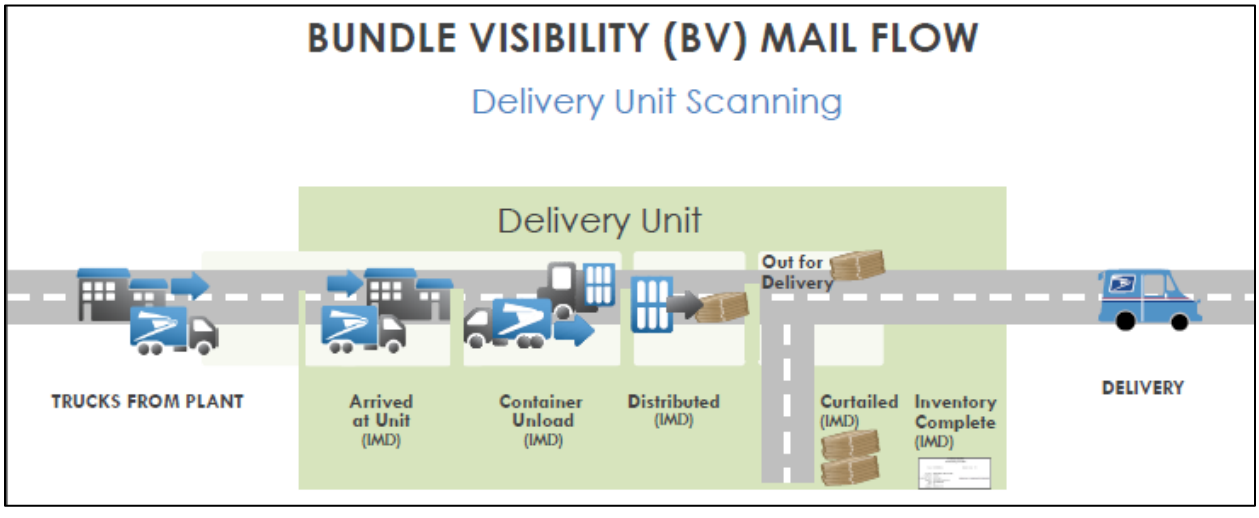
It bears emphasizing that the Postal Service is in the nascent stages of generating SPM data and organizing the manner in which those data will be systematically utilized to evaluate Last Mile operational issues. It is premature to thoroughly assess how its data generation could be improved for purposes of obtaining more insight into operational issues.

Bundle Scanning Visibility Scorecard

Bundle Visibility is a process for indicating when mailer-prepared carrier route bundles arrive at a delivery unit, are processed, and delivered. This process also allows for scanning of bundles that are curtailed. Tracking and monitoring of this process in Delivery Operations is achieved using the Bundle Scanning Visibility Scorecard, which is a sub-set of the IMb Service Performance Diagnostics System and a web-based program accessible by all levels of postal management. District and Area managers can access this information to monitor the timely handling of these bundles which can account for a significant amount of volume in delivery units, particularly those without FSS processing. Figure 3 below demonstrates the process flow.[36]

[36] In the diagram, IMD stands for Intelligent Mail Device; in realty, the Mobile Delivery Device (MDD) may be used instead of the IMD. Today, clerks use the IMD, while Letter Carriers use the upgraded MDD.

Figure 3: Bundle Visibility Mailflow



The scorecard displays key data elements on scanning compliance; expected versus actual bundle scans, the number and percent of bundles sent out for delivery and those curtailed in the unit. Data can be displayed nationally, by Area, District, and down to the delivery facility level. An example of data from a one-week national report is shown below, followed by an explanation of the data presented.

Figure 4: Example of data presented on the Bundle Visibility Scorecard

DU Bundle Visibility Score	Distributed Scan Compliance	Expected w Distributed Scans	Actual w Distributed Scans	Distributed Scans Variance	OFD Bundles Percentage	Expected w OFD Scans	Actual w OFD Scans	Curtailed Bundles	Inventory Complete Scan Compliance	Expected w Inventory Complete Scans	Actual w Inventory Complete Scans	Inventory Complete Variance
75.60%	83%	3,504,749	2,908,749	596,000	91.10%	2,908,749	2,648,729	260,020	93.40%	40,586	37,909	2,677

- **Delivery Unit (DU) Bundles Visibility Scores** – "Actual Out for Delivery (OFD) Scans" divided by "Expected Distributed Scans," expressed as a percentage.
- **Distributed Scan Compliance** – "Actual Distributed Scans" divided by "Expected Distributed Scans," expressed as a percentage.
- **Expected Distributed Scans** – Total FSS bundles that received an APPS/APBS scan, no downstream mail processing equipment (MPE) scan, and are nested to a container with a scannable placard at the delivery unit.

- **Actual Distributed Scans** – Total FSS bundles that received and APPS/APBS scan, no downstream MPE scan, and nested to a specific container at the delivery unit.
- **Distributed Scans Variance** – Difference between "Actual Distributed Scans" and "Expected Distributed Scans."
- **Out For Delivery (OFD) Bundles Percentage** – "Actual OFD Scans" divided by "Expected OFD Scans," expressed as a percentage.
- **Expected OFD Scans** – Total bundles that received an APPS/APBS scan, no downstream MPE scan, and nested to a container with a scannable placard that received a distributed scan.
- **Actual OFD Scans** – Total bundles that received an APPS/APBS scan, no downstream MPE scan, and nested to a container with a scannable placard that received a distributed scan.
- **Curtailed Bundles** – Difference between "Actual OFD Scans" and "Expected OFD Scans."
- **Inventory Complete Scan Compliance** – "Actual Inventory Complete Scans" divided by "Expected Inventory Complete Scans," expressed as a percentage.
- **Expected Inventory Complete Scans** – Total count of delivery units that are required to perform the "Inventory Complete Scans."
- **Actual Inventory Complete Scans** – Total count of delivery units that performed the "Inventory Complete Scans."
- **Inventory Complete Variance** – Difference between "Actual Inventory Complete Scans" and "Expected Inventory Complete Scans."

Transit Time Measurement System (TTMS)

Transit Time Measurement System (TTMS) data from the External First-Class (EXFC) measurement and Intelligent Mail Accuracy and Performance System (IMAPS) service performance measurement systems calculate Last Mile impact for flats, with reports available at several levels. Weekly reports provide information at the destination District level for Presort First-Class Mail flats by service standard, for Standard Mail and Periodicals flats by destination entry type and service standard group, and Bound Printed Matter (BPM) flats by destination entry type. Reports are also available showing rates of Last Mile delays for groupings of 5-digit ZIP Codes within Districts for these same products. For Single-Piece First-Class Mail flats measured by EXFC, there are

biweekly “Root Cause” reports which provide information about Last Mile failures at the destination District and destination plant levels.

Delivery Management System (DMS)

This system provides postal management with unprecedented insight into carrier route delivery route performance utilizing the technology provided by the Mobile Delivery Device. Passive location reporting is generated on a minute-by-minute basis to show how a carrier is navigating the assigned route in comparison to the expected path. The resulting data provides insight into work practices that deviate from standard procedures and facilitate management’s ability to take corrective actions. Real-time data reporting and analytics enable current day visualization as well as trend analysis over time. Data are overlaid into a visual map presentation to give managers feedback on how carriers are performing on their respective routes. The use of DMS data can help to drive more consistent delivery performance and improved efficiency.

- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

Opportunities to Improve Current Data

While the currently defined Last Mile impact in both the current service performance system and the proposed internal SPM system is a useful metric, it may be beneficial to refine the business logic to more accurately quantify the impact of delivery on service performance in some instances. For example, consider Standard Mail flats that were in carrier route bundles that did not arrive at the delivery until the morning of the date they must be delivered to meet the service standard. If such flats are delivered after the service standard, they are currently identified as Last Mile failures under both

current service performance system and the internal SPM system. More aptly, such failures might be labeled as transportation delays or processing delays because the operating plan called for more time dedicated to delivery operations than was available. The work which would be involved in building such business logic is similar to that described for other pinch points. The business rules defining the conditions under which a piece would be attributed to the Last Mile failure category would need to be established and then software programs in the internal SPM system could be developed to assess the pieces in service performance measurement against those refined rules. The costs involved in such an effort may prove not to be significant, but additional visibility data (beyond what is available for flats in the current service performance system and the internal SPM system) may be needed to more reliably distinguish between delays in moving the mail from the plant to the delivery unit, and delays in Last Mile/delivery. However, even without additional visibility event data, more refined logic to take into account checkpoint times would likely be beneficial.

Pertaining to cost, as the Commission is aware,[37] IOCS and CCS data are of limited usefulness for improving Last Mile operations. IOCS and CCS data provide no visibility into the root cause of operational problems; the systems only measure *what* employees are handling, not *why*. In addition, they are designed to be national, not local, sampling systems. The ability to provide timely data to local operations would require a significant increase in sample size under both systems, and consequently, necessitate a significant investment in the systems. For the reasons set forth in the introduction of this report, attempting to estimate the cost of expanding the sample sizes at this time would be a futile and impractical exercise.

[37] FY 2015 ACD Report at 164.

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- ***Identify all information that would be necessary to develop, implement, monitor, and quantify results for a comprehensive plan to improve flats service performance and cost coverage if an ideal data system were available.***

As part of the quarterly market-dominant product data generated by the Service Performance Measurement system currently under review in Docket No. PI2015-1, the Postal Service already provides Last Mile metrics to the Commission. Otherwise, the ideal data system for this pinch point would have the general characteristics described above at pages 28-29.